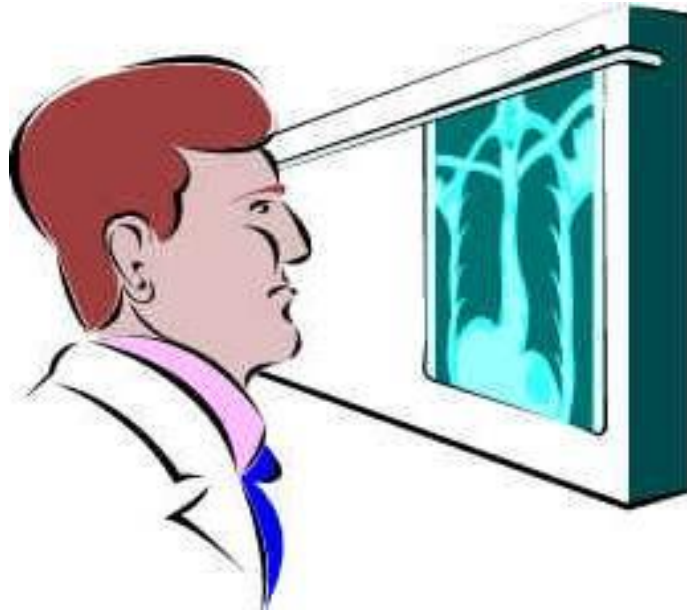


# **X-Rays in Pediatrics**

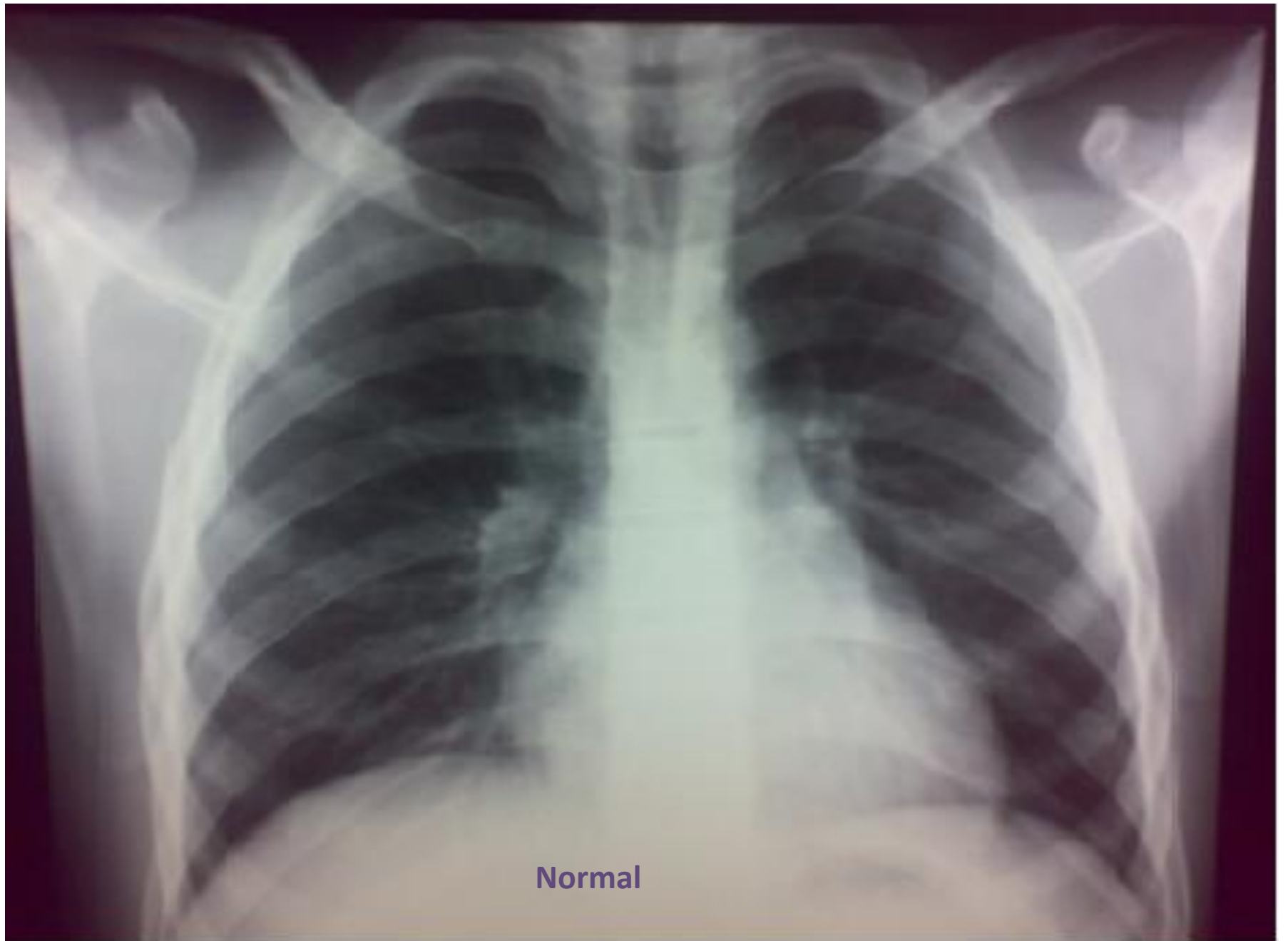


BY

**AHMAD DARWISH**

**Lecturer of Pediatrics**



**MUCH**



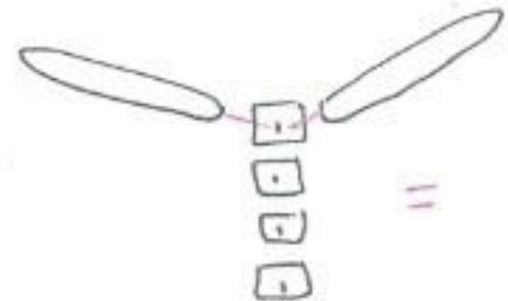
**Normal**

# Chest X Ray

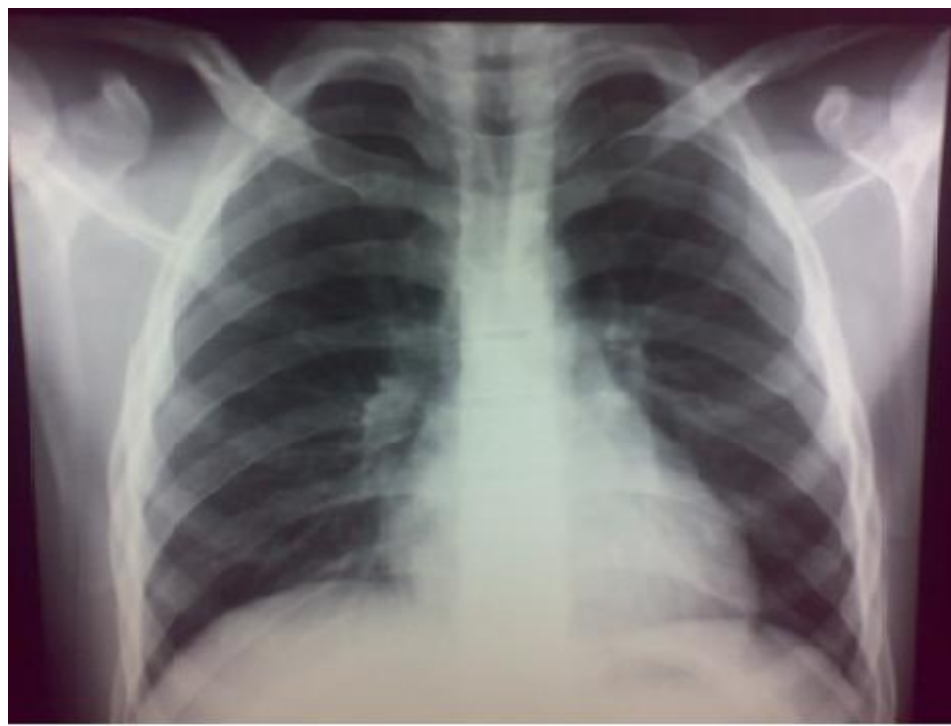
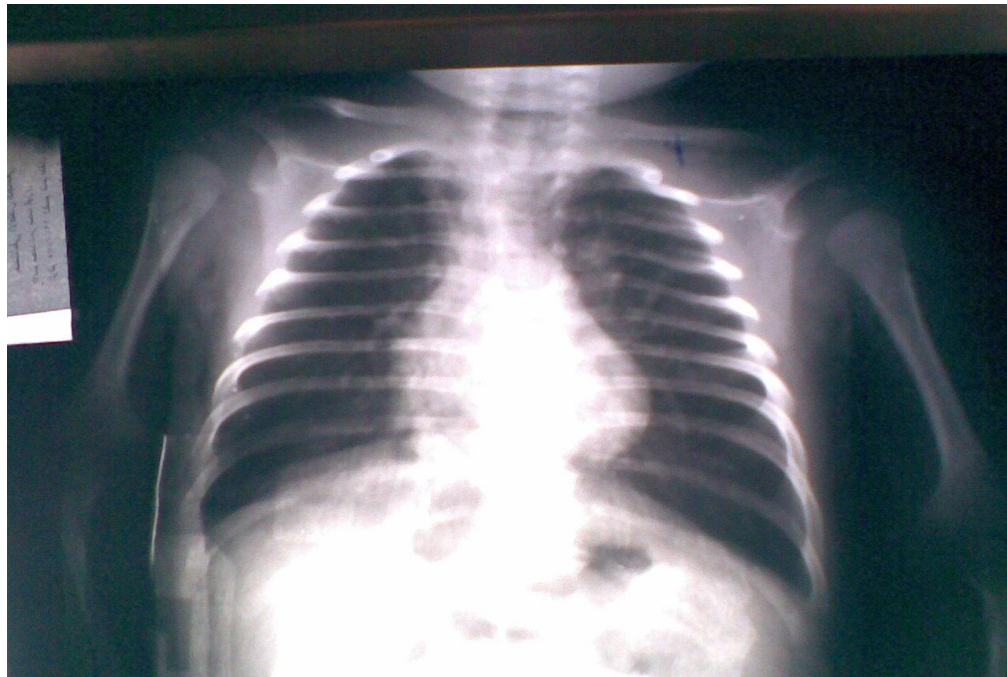
① CXR

② Position → Postero-Anterior   
→ Anter posterior 

③ Centralization → Centralized  
→ not centralized





④ Quality → Hard → (18S)  
→ Good → (10S)  
→ soft → (15)





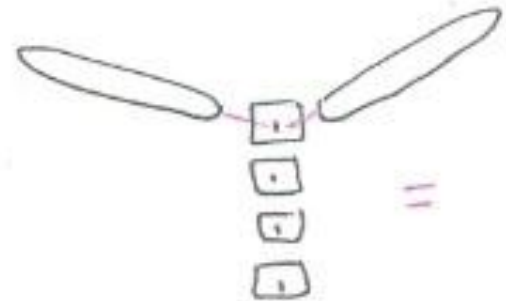
# Chest X Ray

① CXR

② Position → Postero-Anterior   
→ Anter posterior 

③ Centralization → Centralized  
→ not centralized



④ Quality → Hard → (18S)  
→ Good → (10S)  
→ soft → (1S)





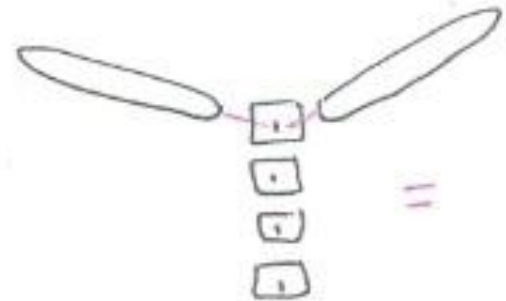
# Chest X Ray

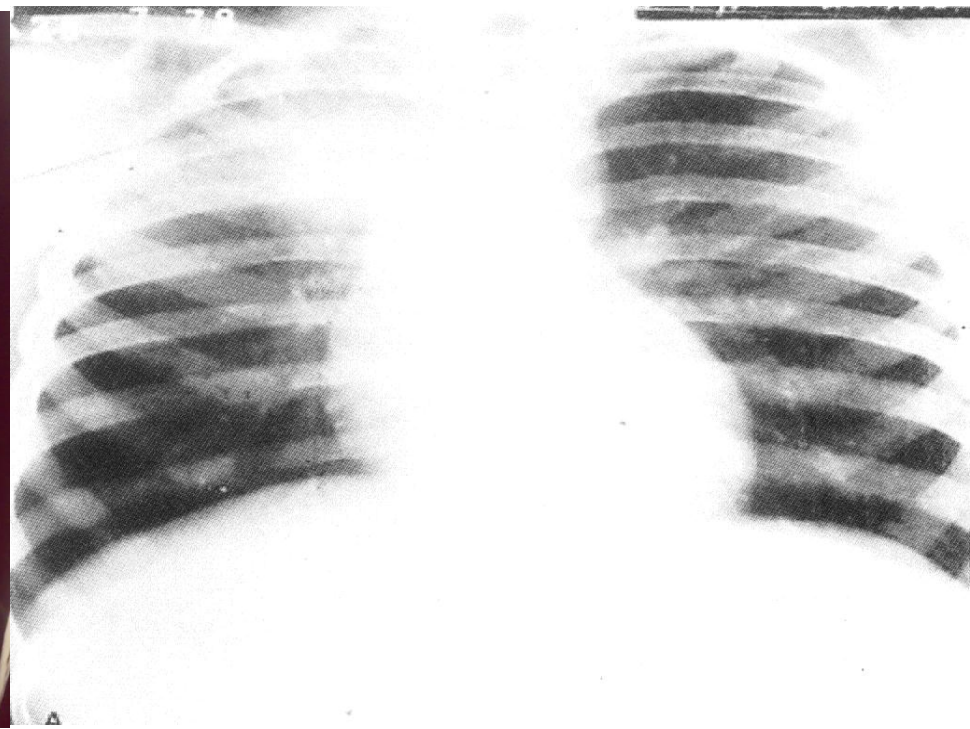
① CXR

② Position → Postero-Anterior   
→ Anter posterior 

③ Centralization → Centralized  
→ not centralized

④ Quality → Hard → (18S)  
→ Good → (10S)  
→ soft → (1S)





# Chest X Ray

⑤ Bony framework

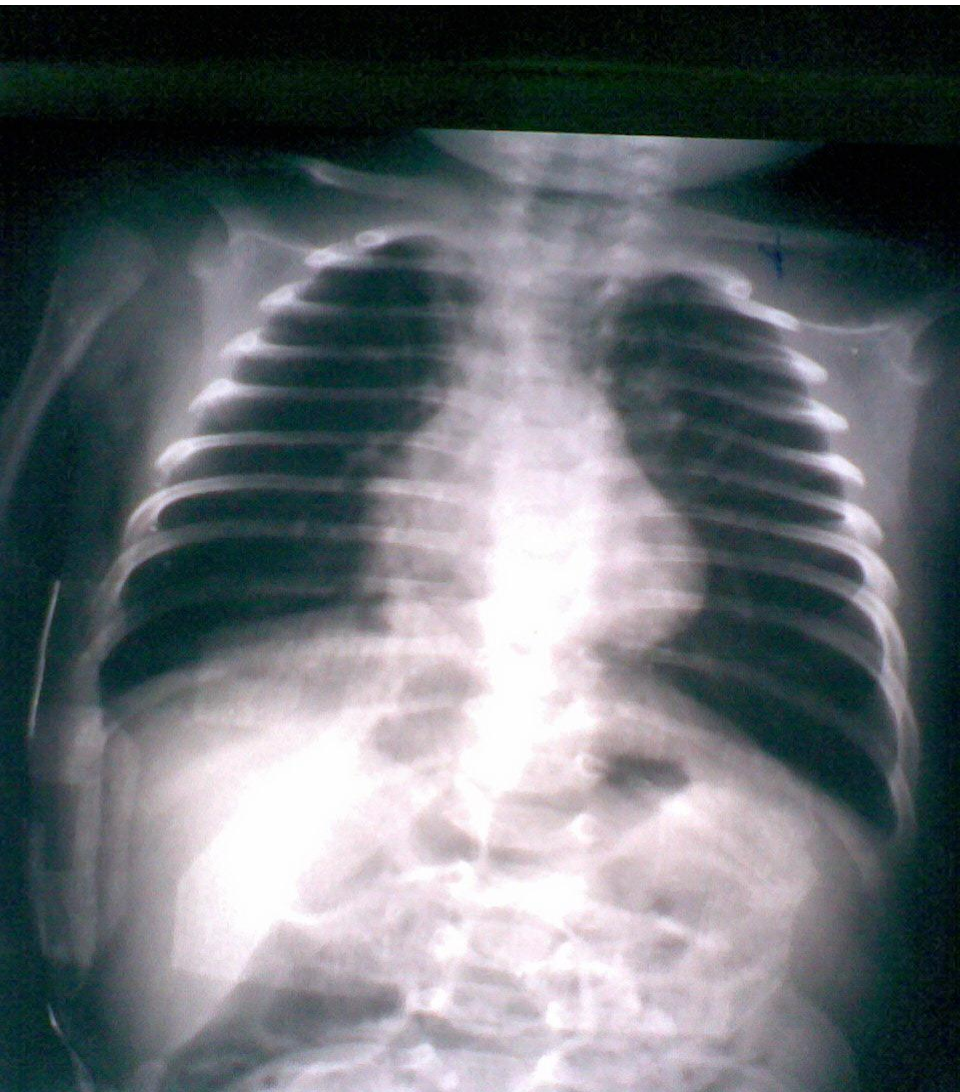
⑥ Mediastinum   
 ← Centralized or not   
 ← Broad.   
 ← Mass.

⑦ Diaphragm   
 ← Rt-Lt   
 ← Hernia   
 ← dome-shaped or flat   
 ← elevated, depressed

Exp. 1	insp	
6	8	ant ribs
8	10	post "

⑧ Orientation   
 < Rt   
 < Lt   
 mark gap bubble. (stomach)



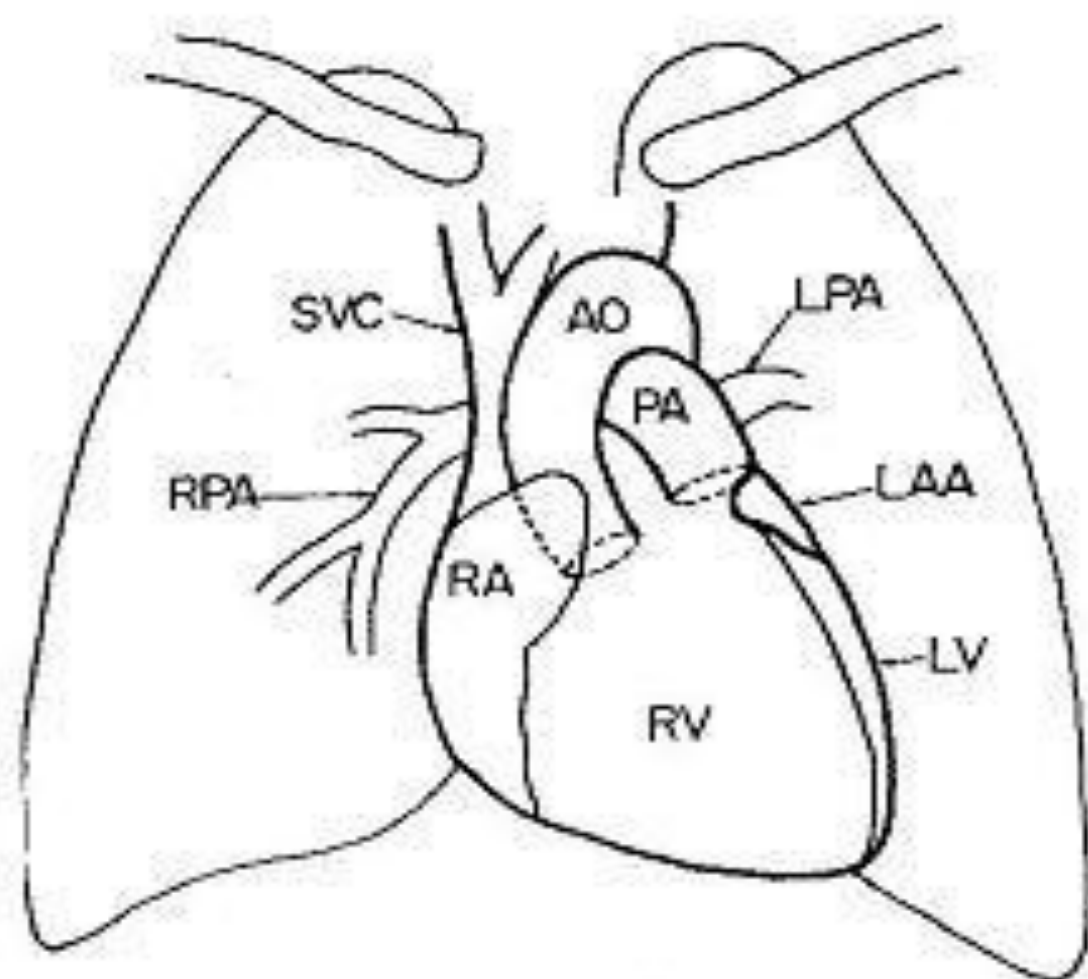


**Emphysema**

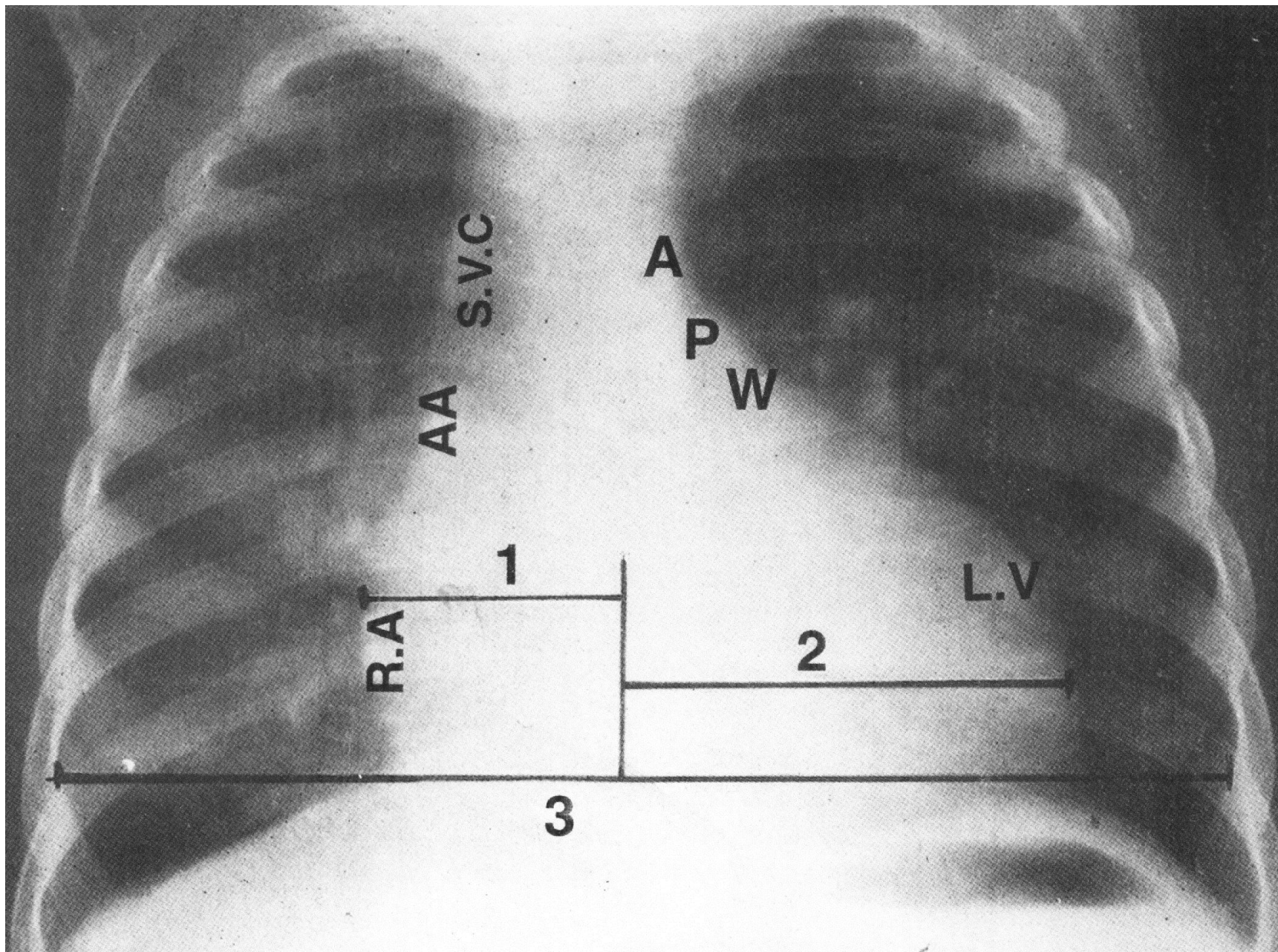


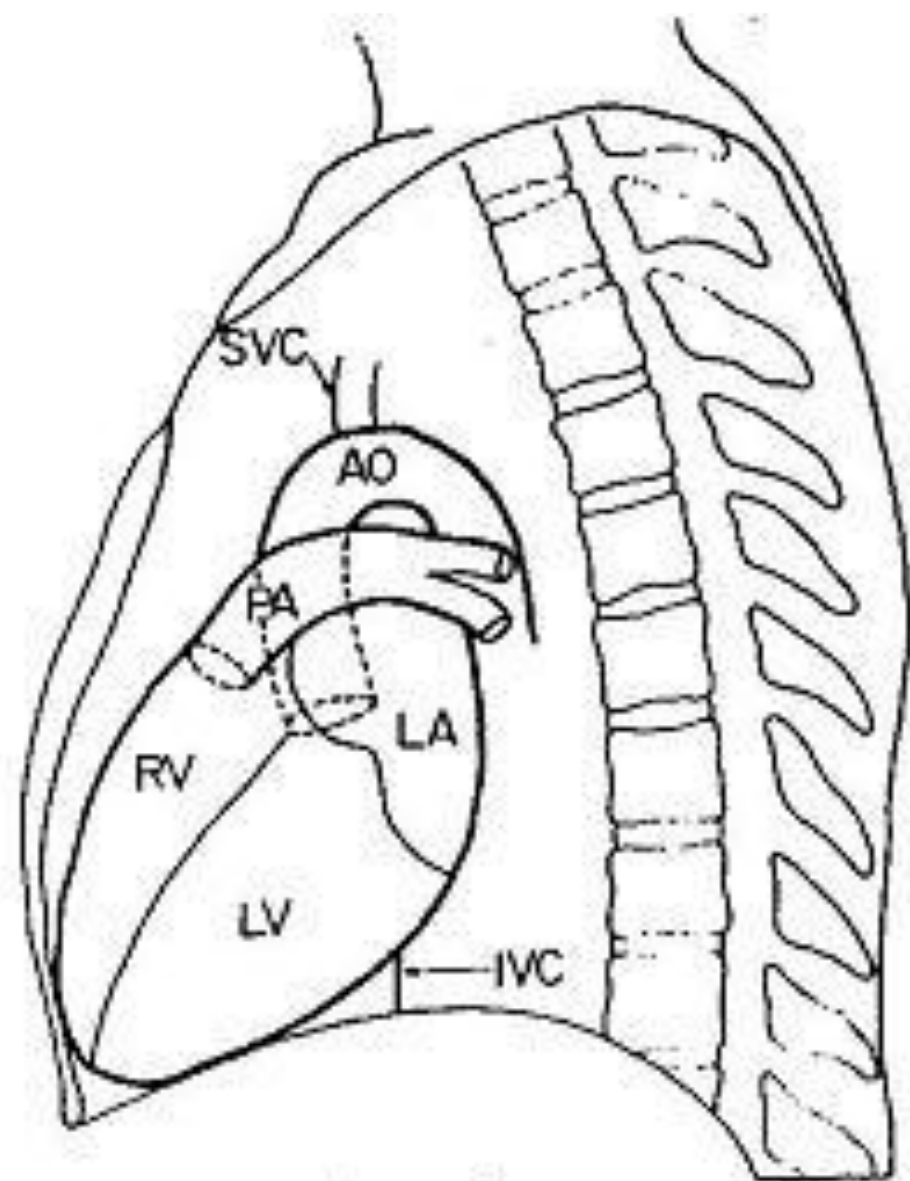
**Normal**





Posteroanterior



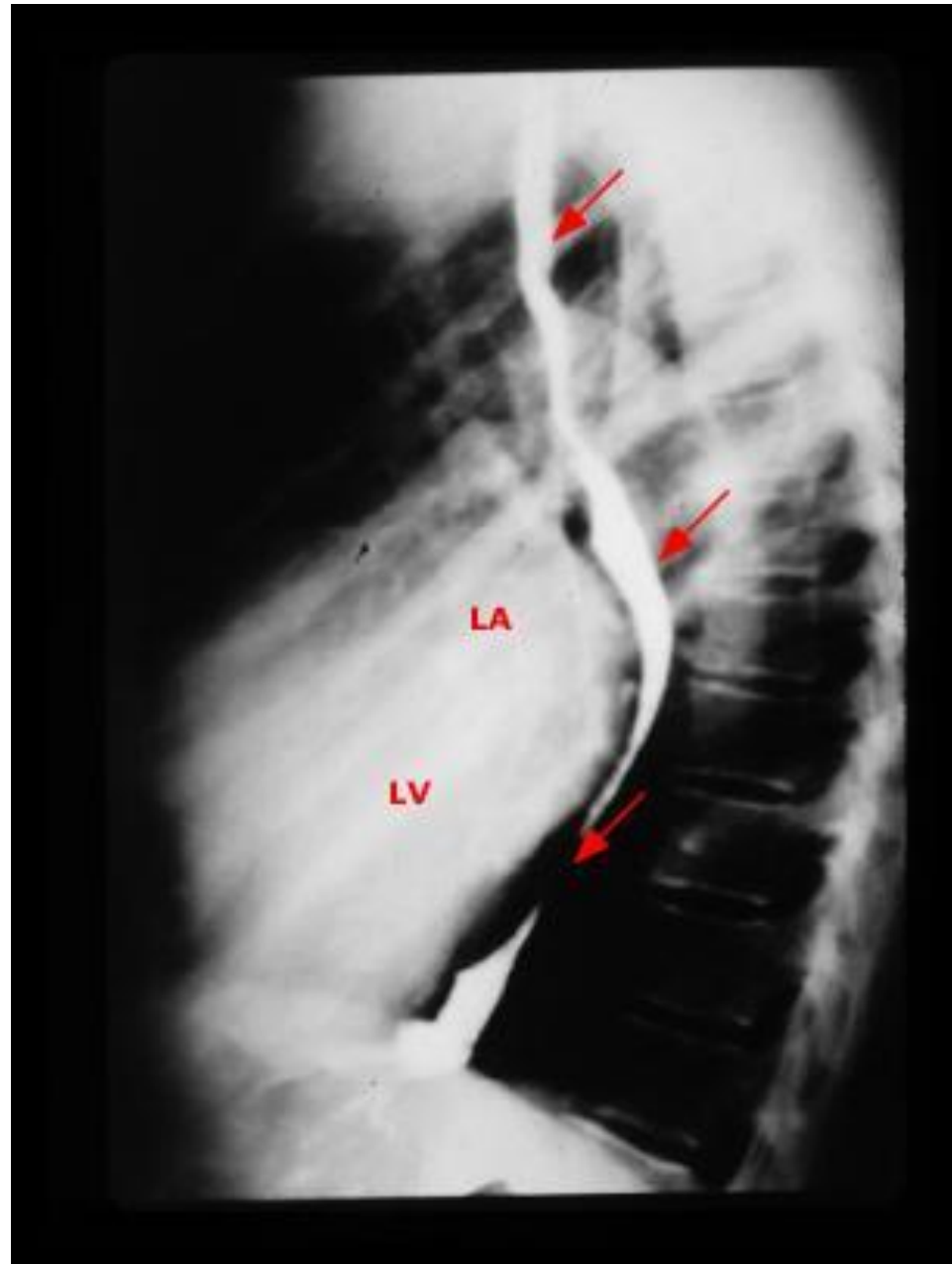


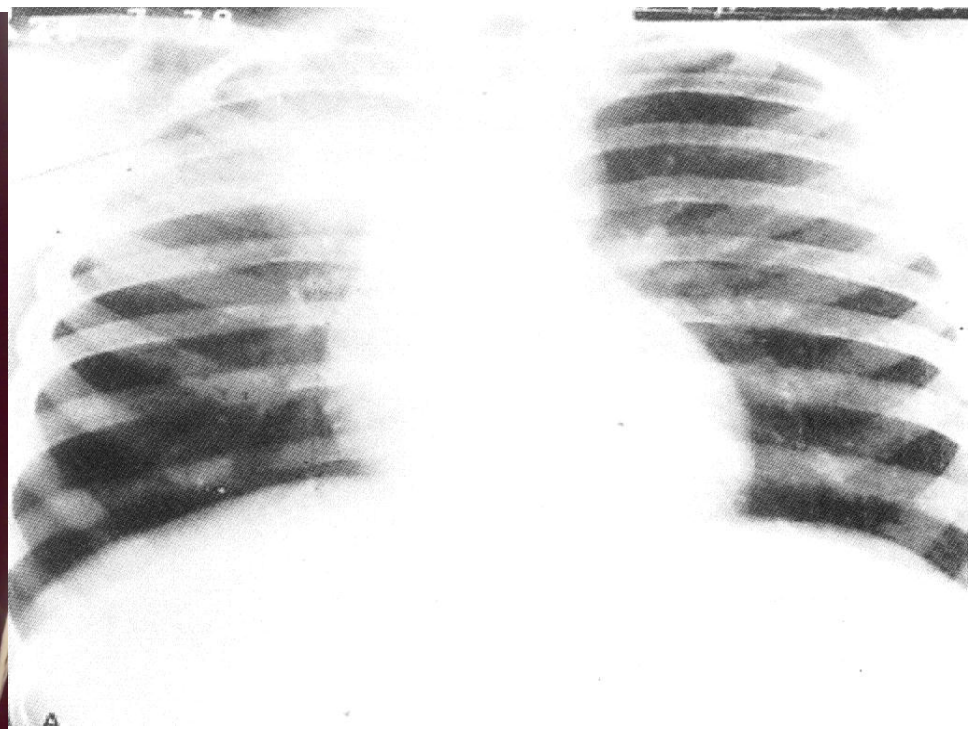
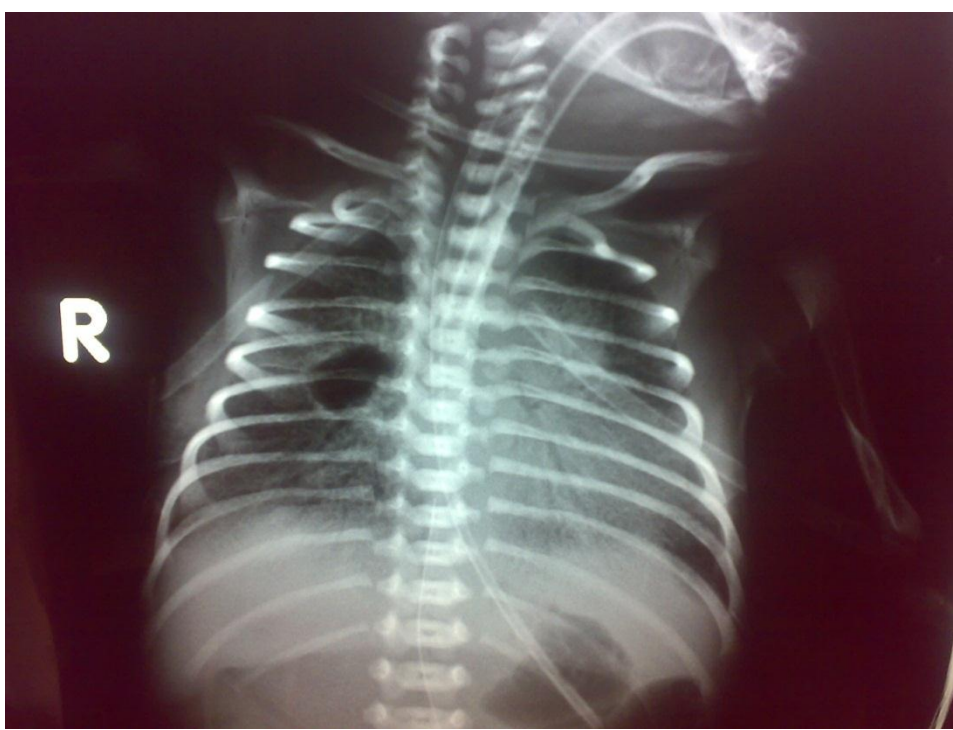
Lateral

Lateral CXR

Barium swallow

LAE









Normal





⑨

# Cardiac shadow (contour)

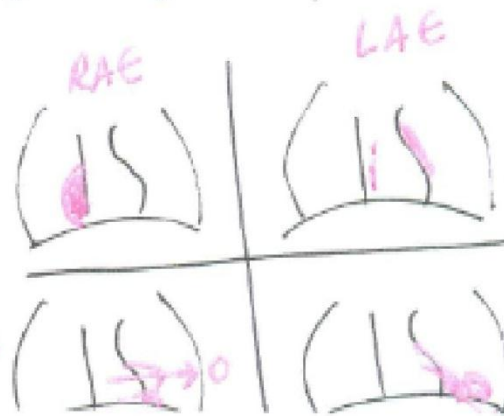
a) Cardiothoracic ratio

b) Chamber enlargement

- waist   
     Normal   
     obiterated   
     exaggerated   
 Left cardiophrenic angle



$$\frac{1+2}{3} > 50\% \rightarrow \text{①}$$

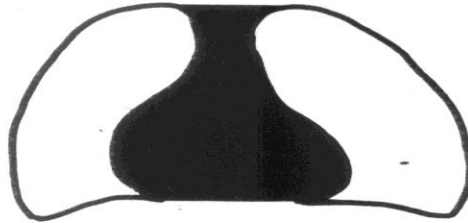


- obliteration of waist   
 - Double Contour

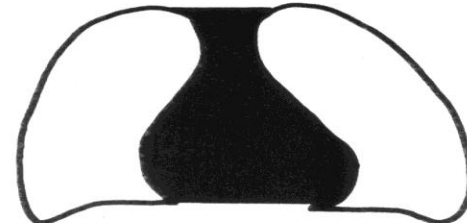
LVE

## **Abnormal cardiac configuration**

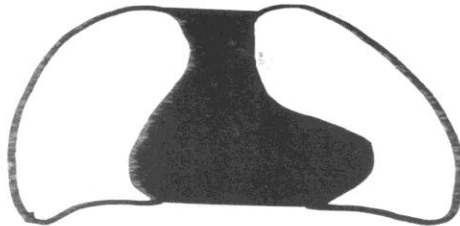
**Right atrial enlargement**



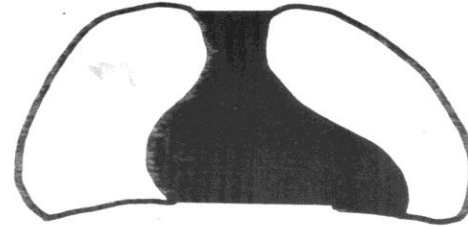
**Left atrial enlargement**



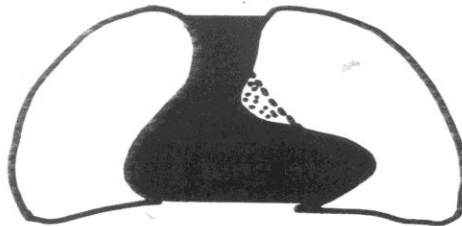
**Right ventricular enlargement**



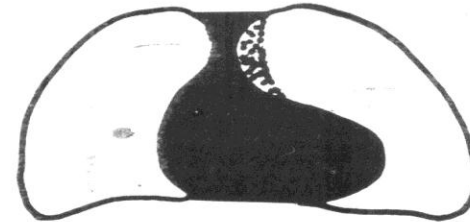
**Left ventricular enlargement**



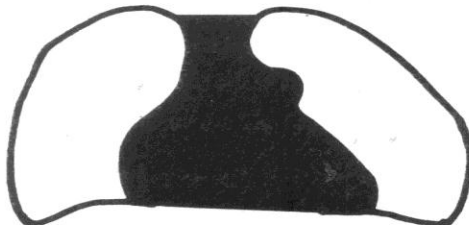
**Boot-shaped heart**



**Egg-shaped heart**



**Mitralized heart**

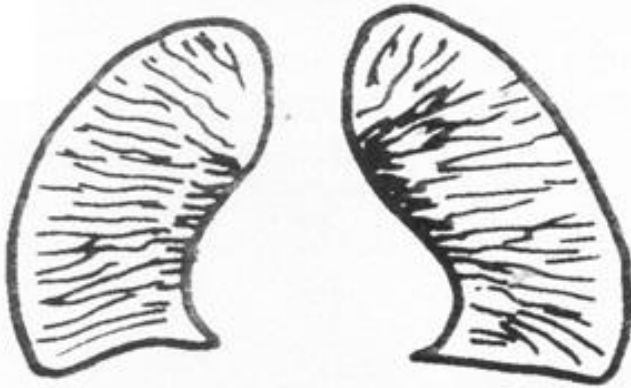


**Flask shaped heart**



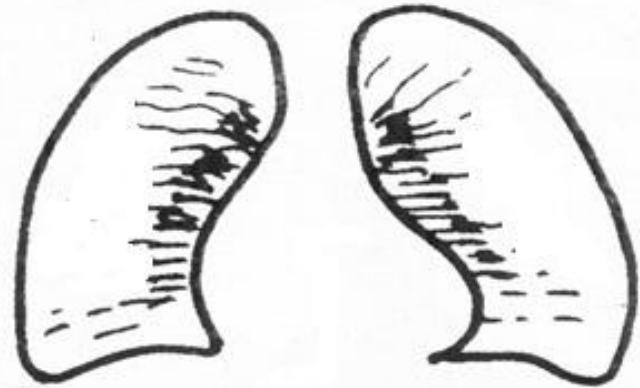
# Pulmonary vascular patterns

**Lung plethora**



**Prominent vasculature**

**Lung congestion**



**Hazy vasculature**

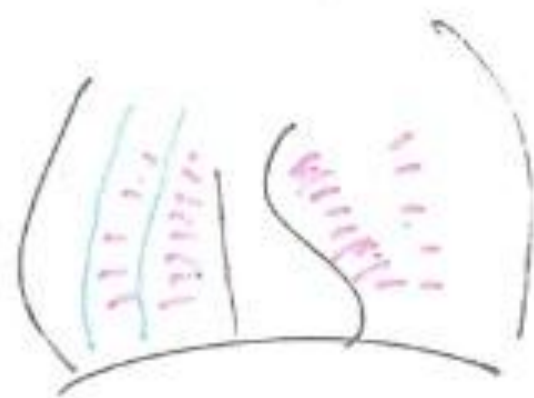
**Lung oligemia**



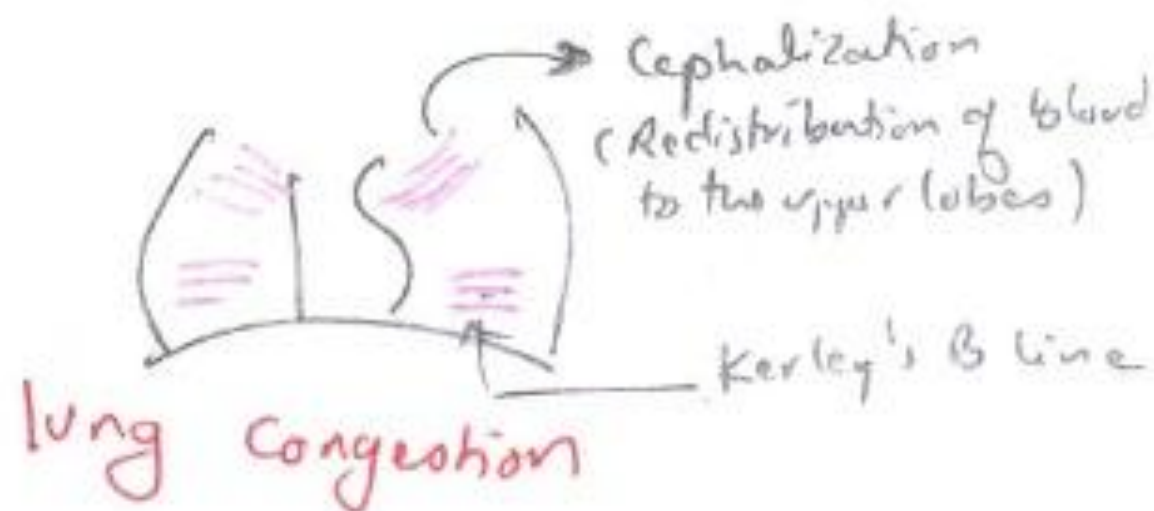
**Faint vasculature**



Lung  
oligemia

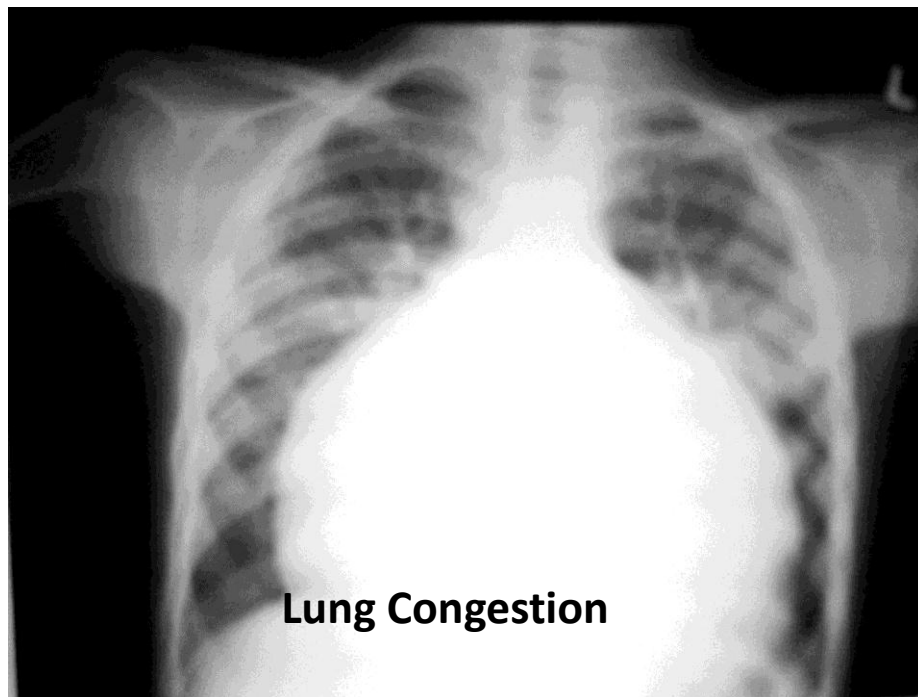
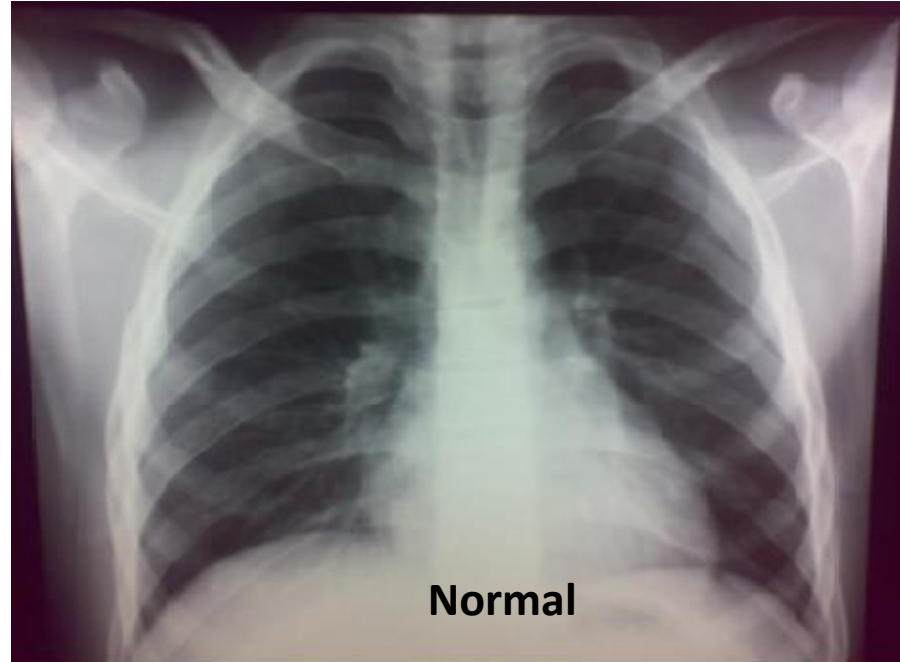
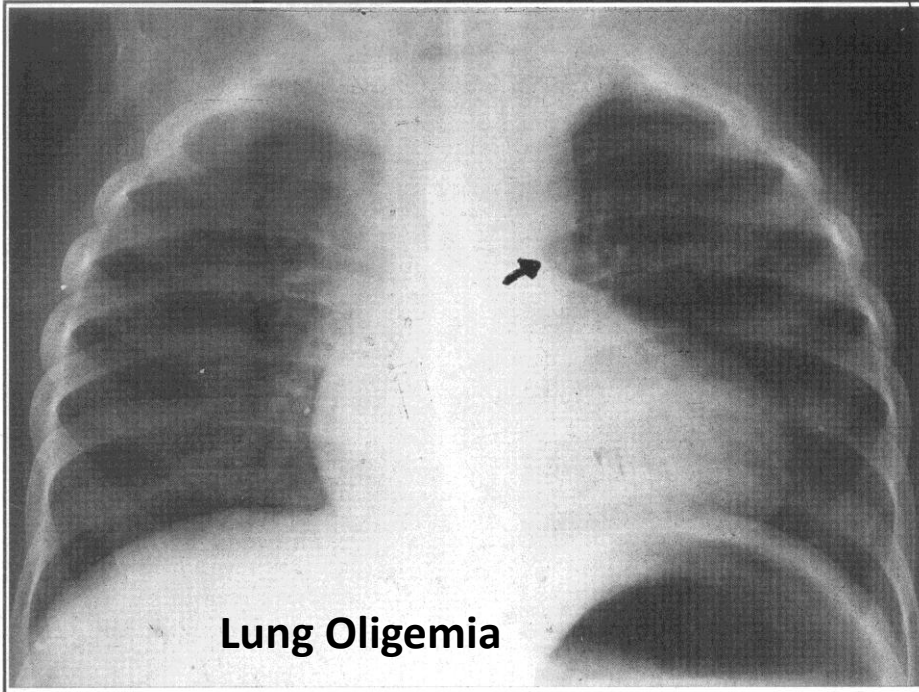


Normal

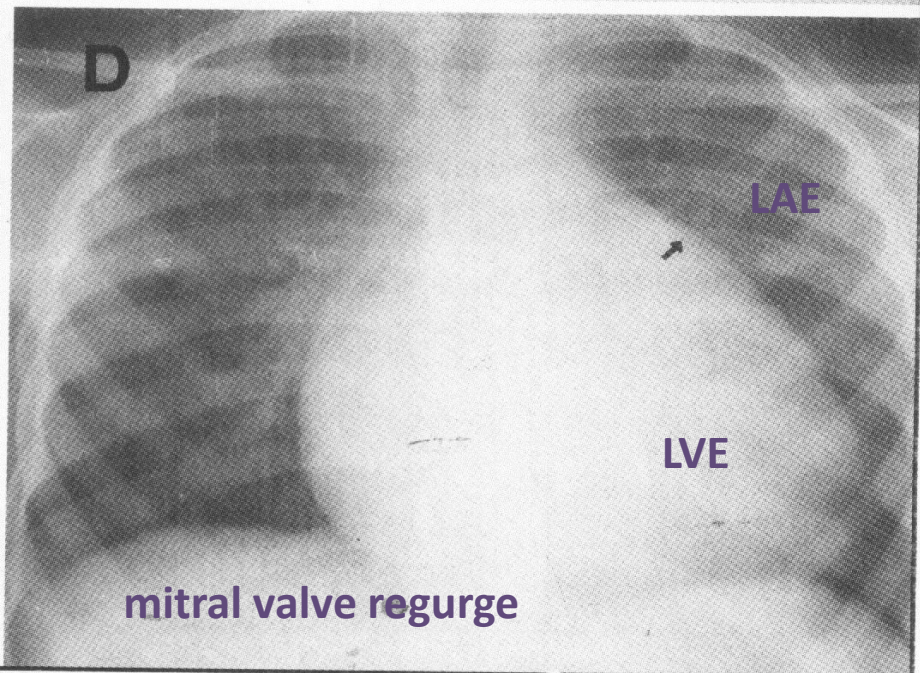
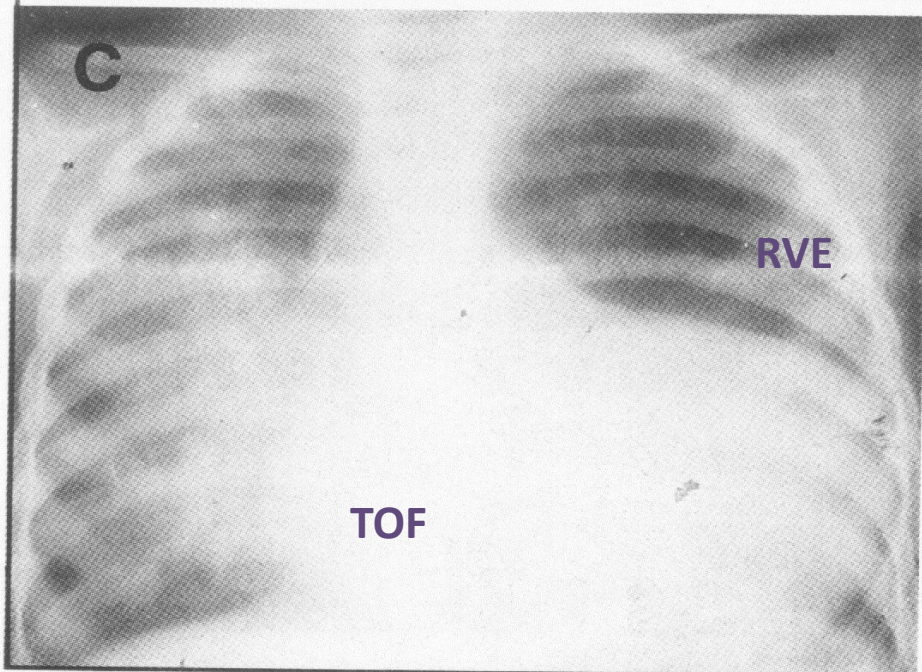
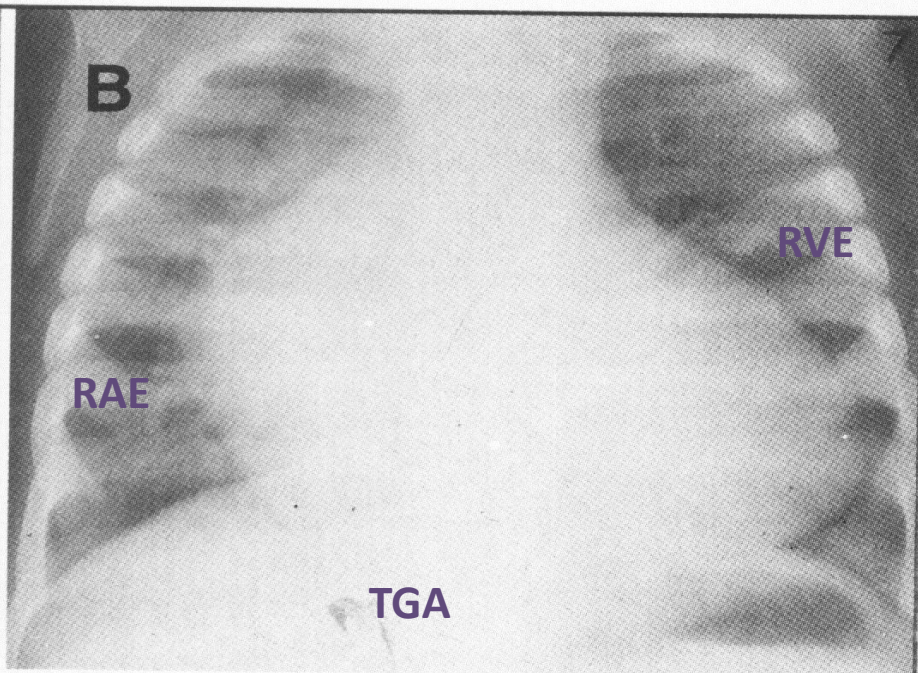
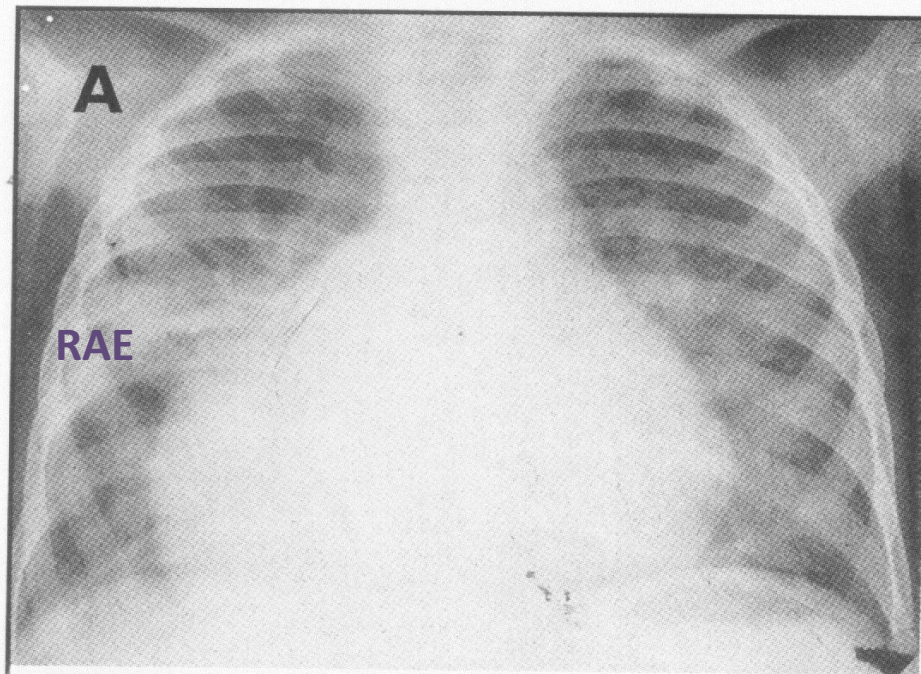


plethora



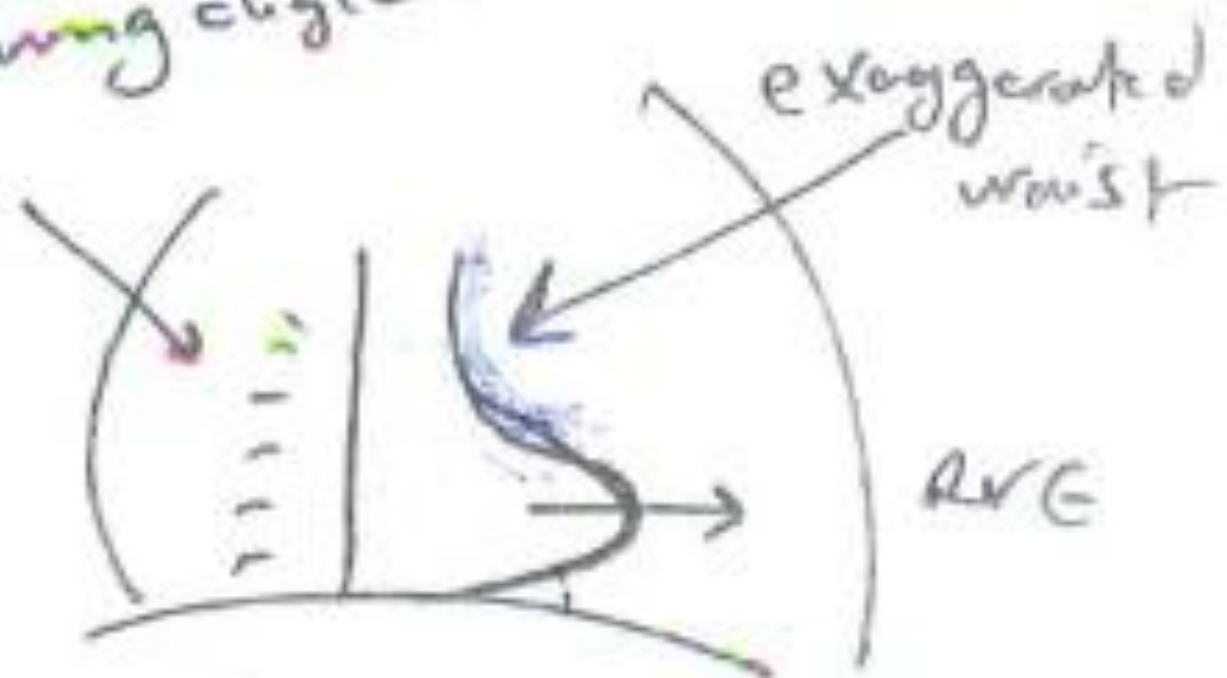








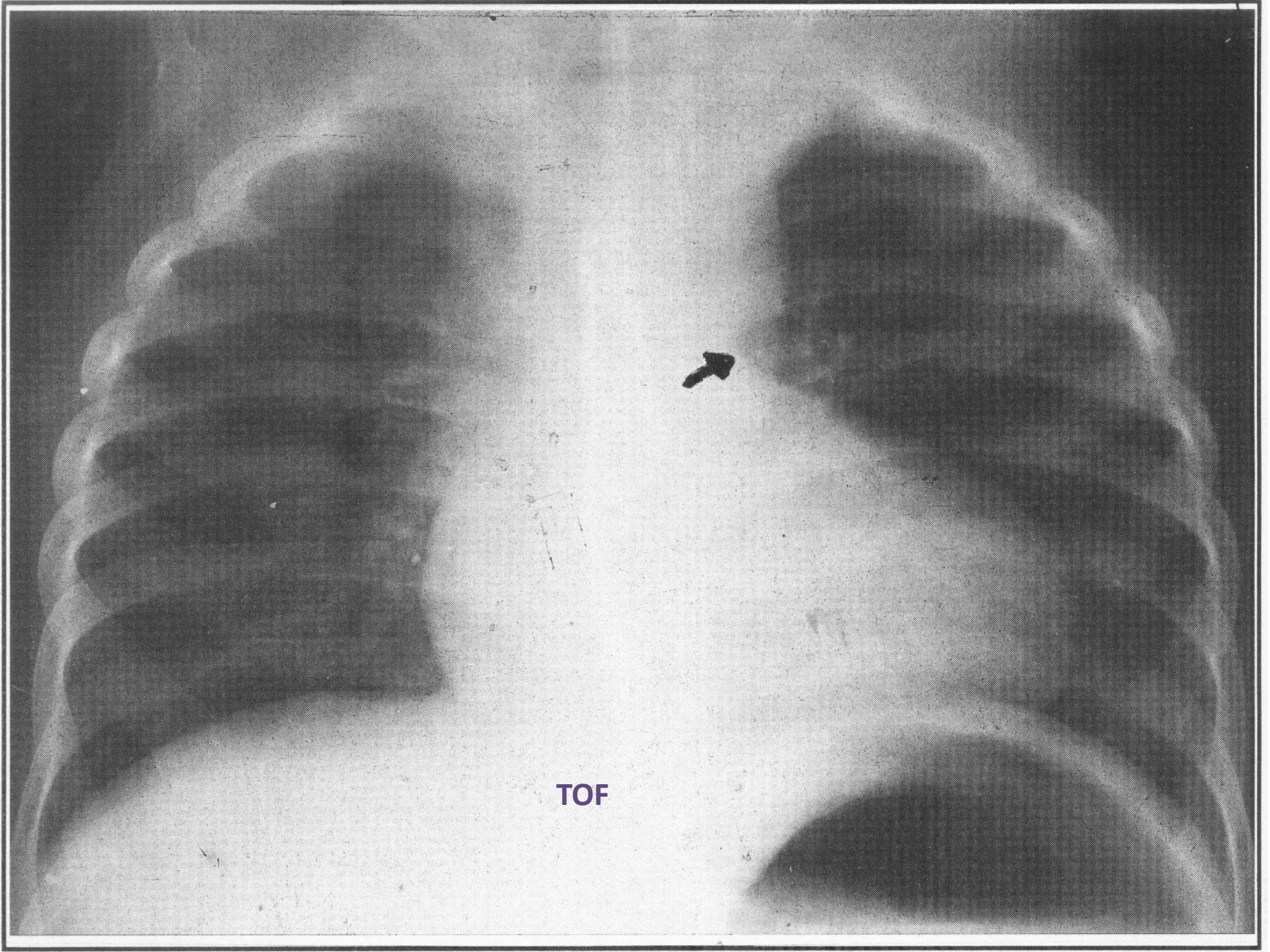
lung cligenia



Boot-shaped  
(coeur en sabot)

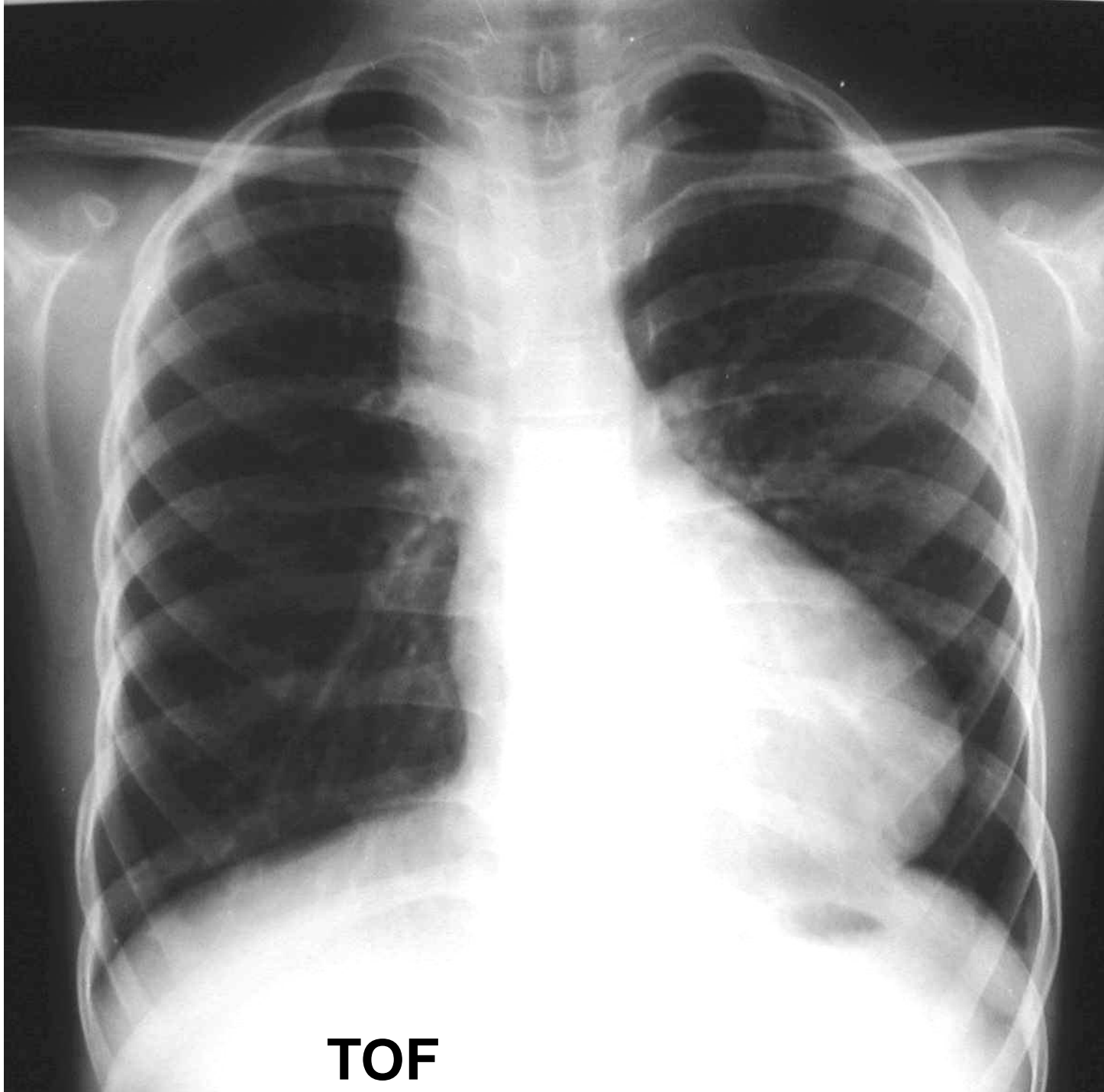
Tof.



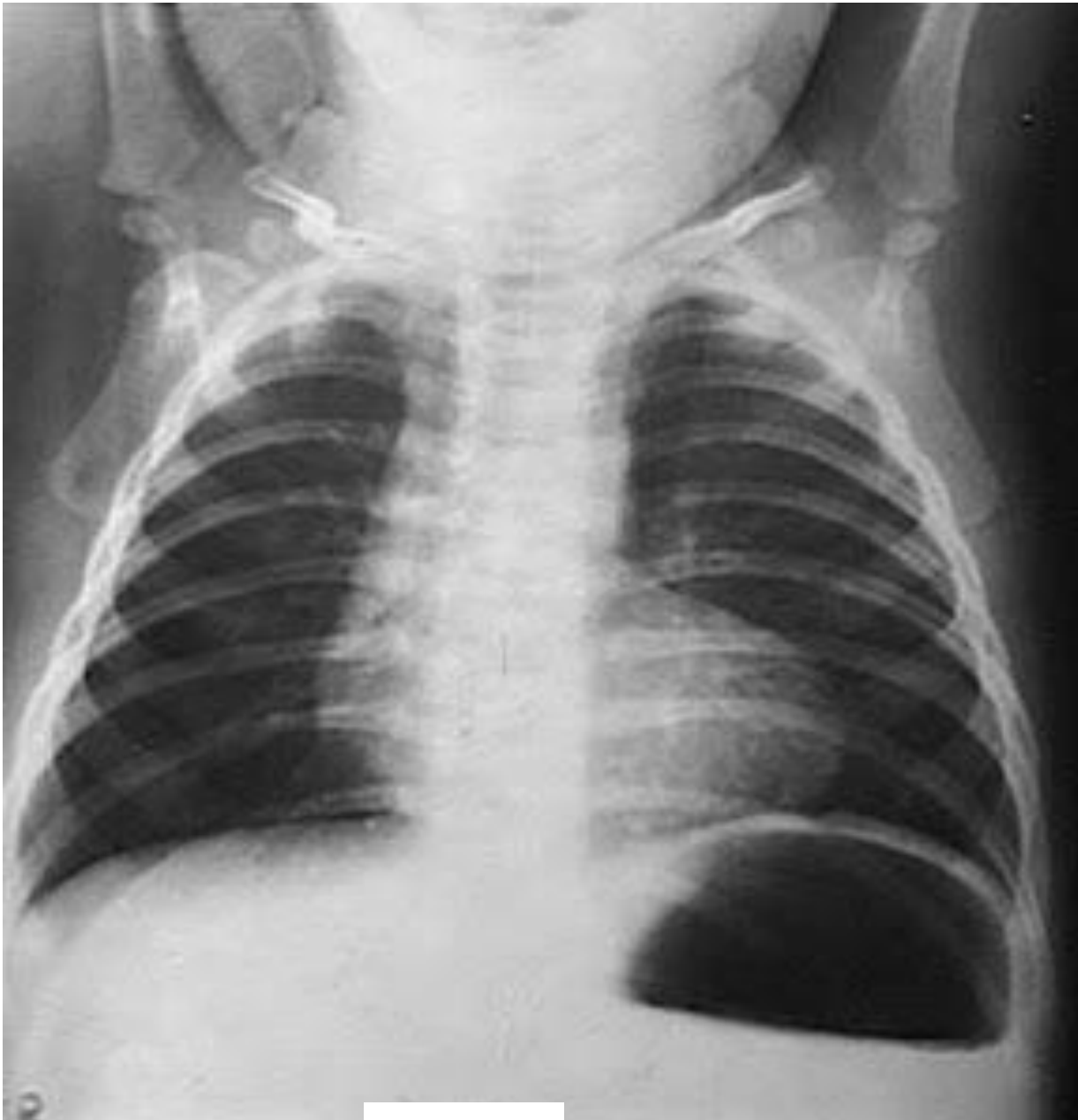


TOF



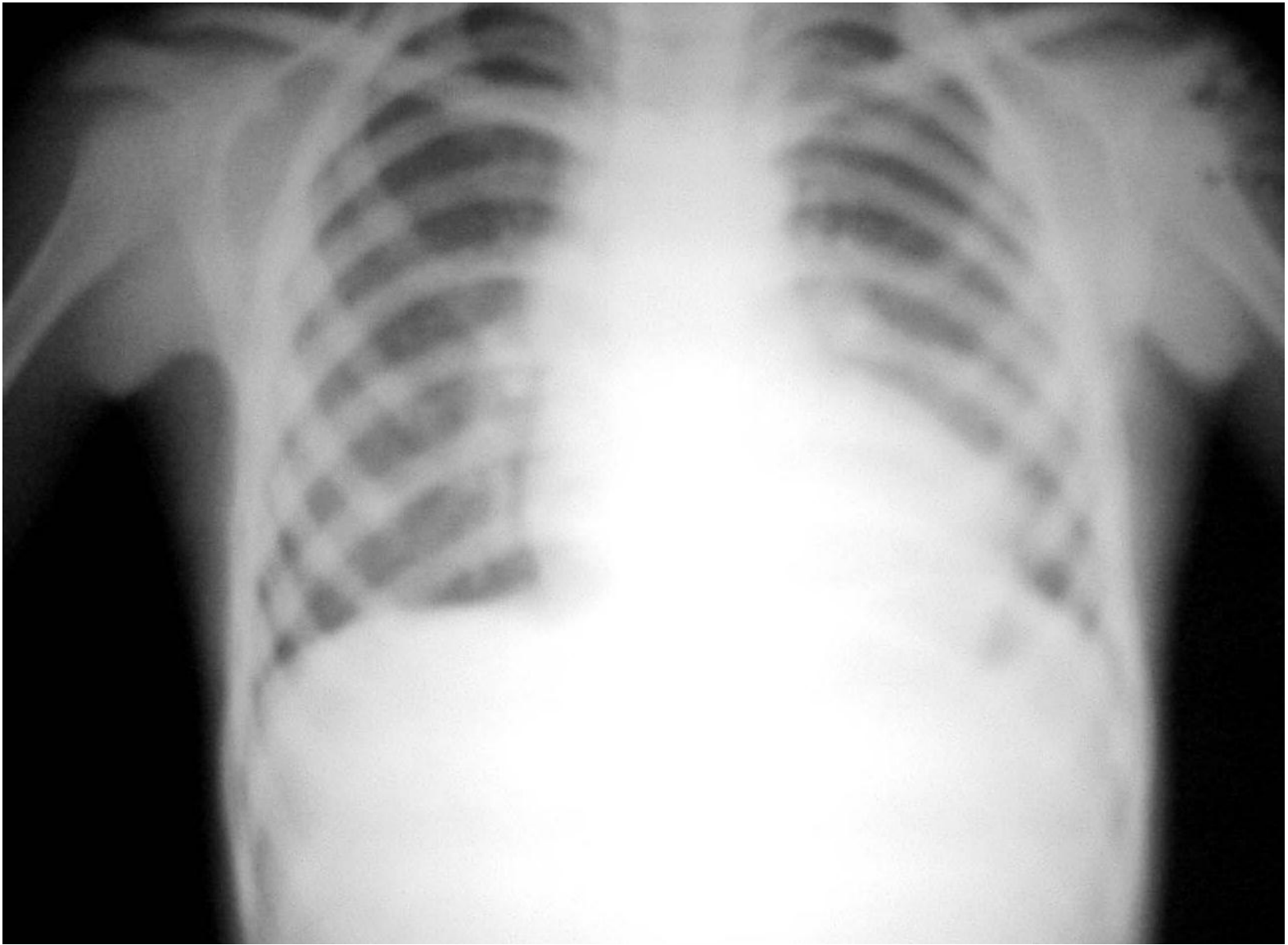


**TOF**

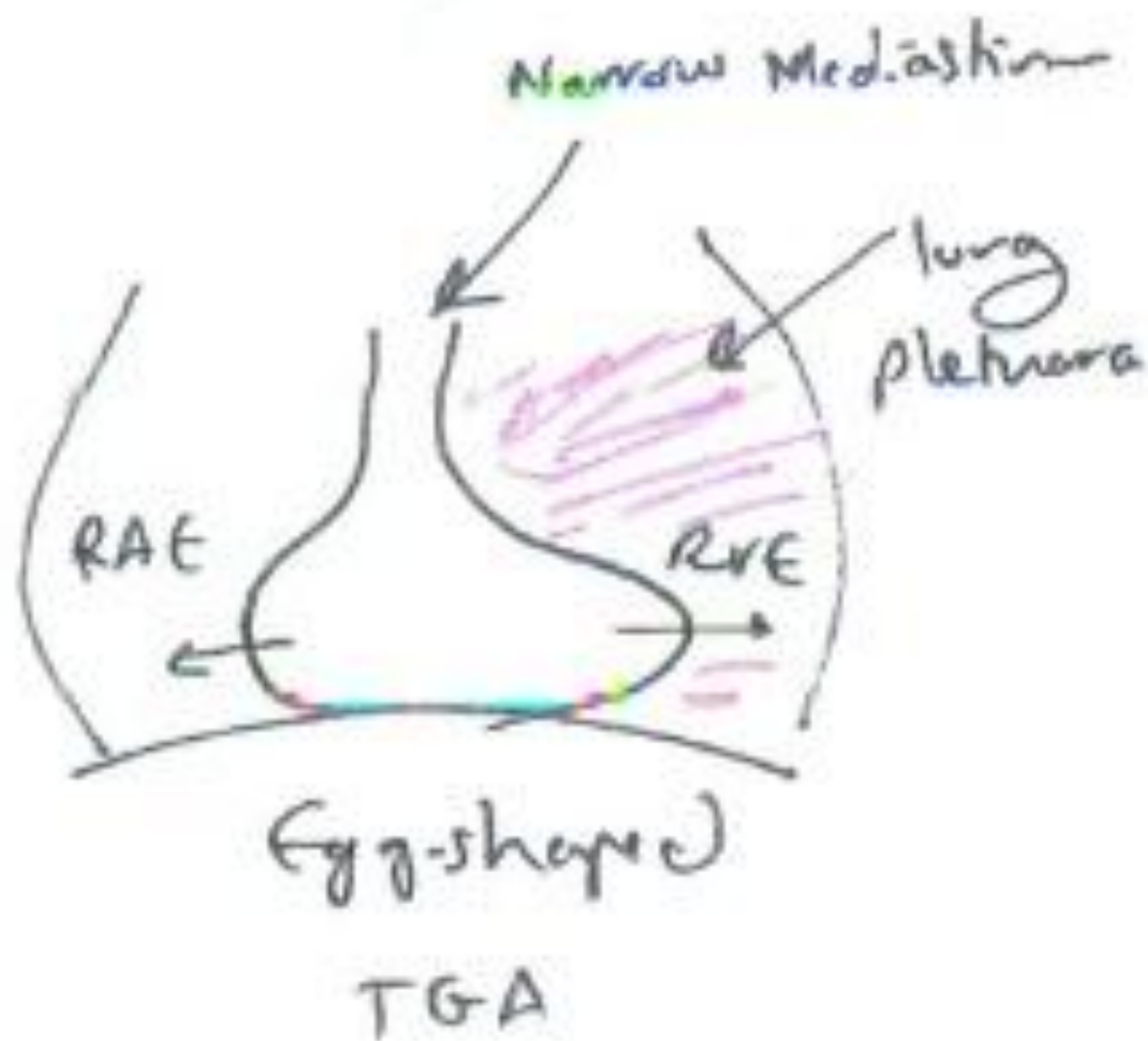


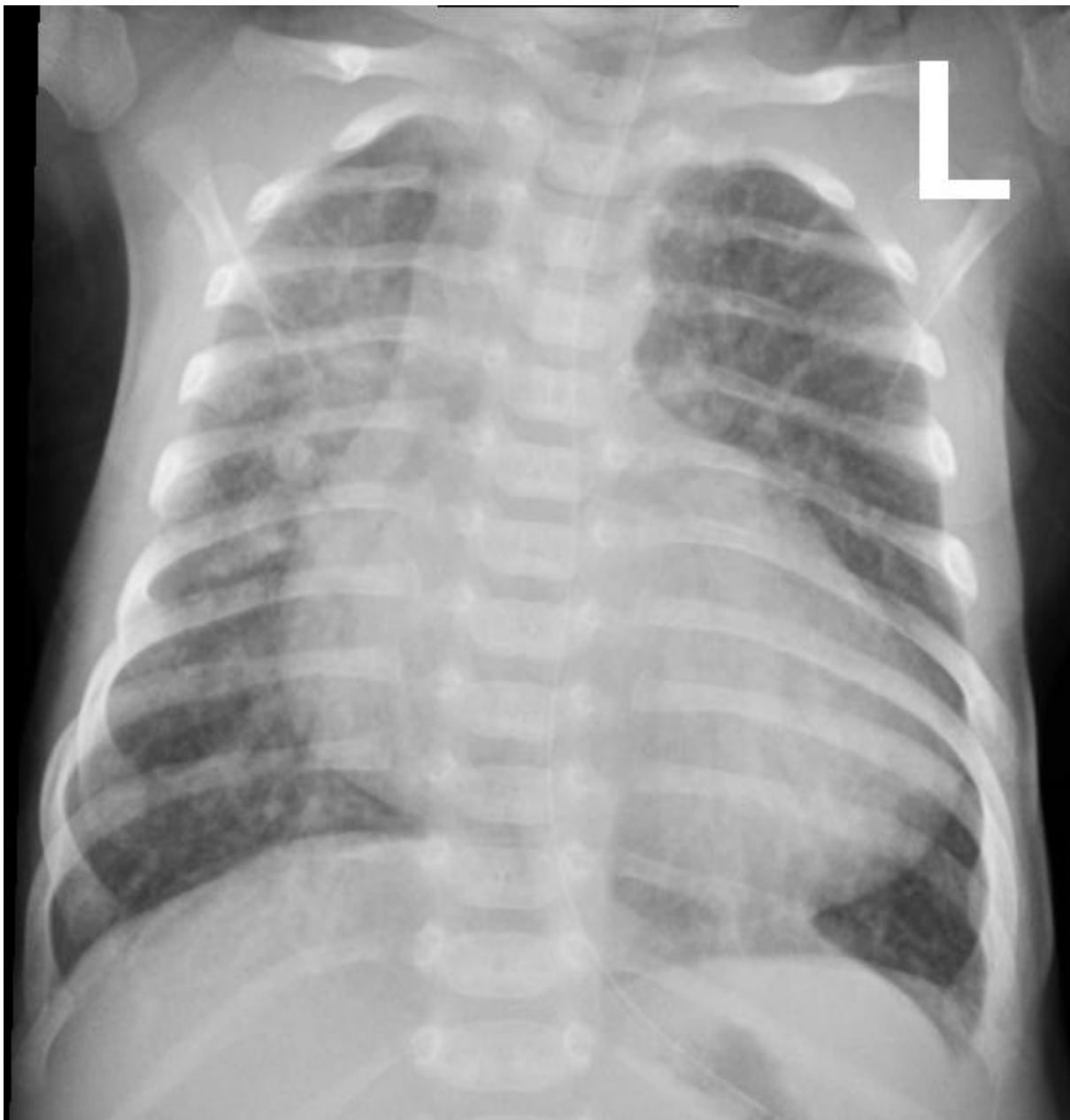
**TOF**





**TOF**



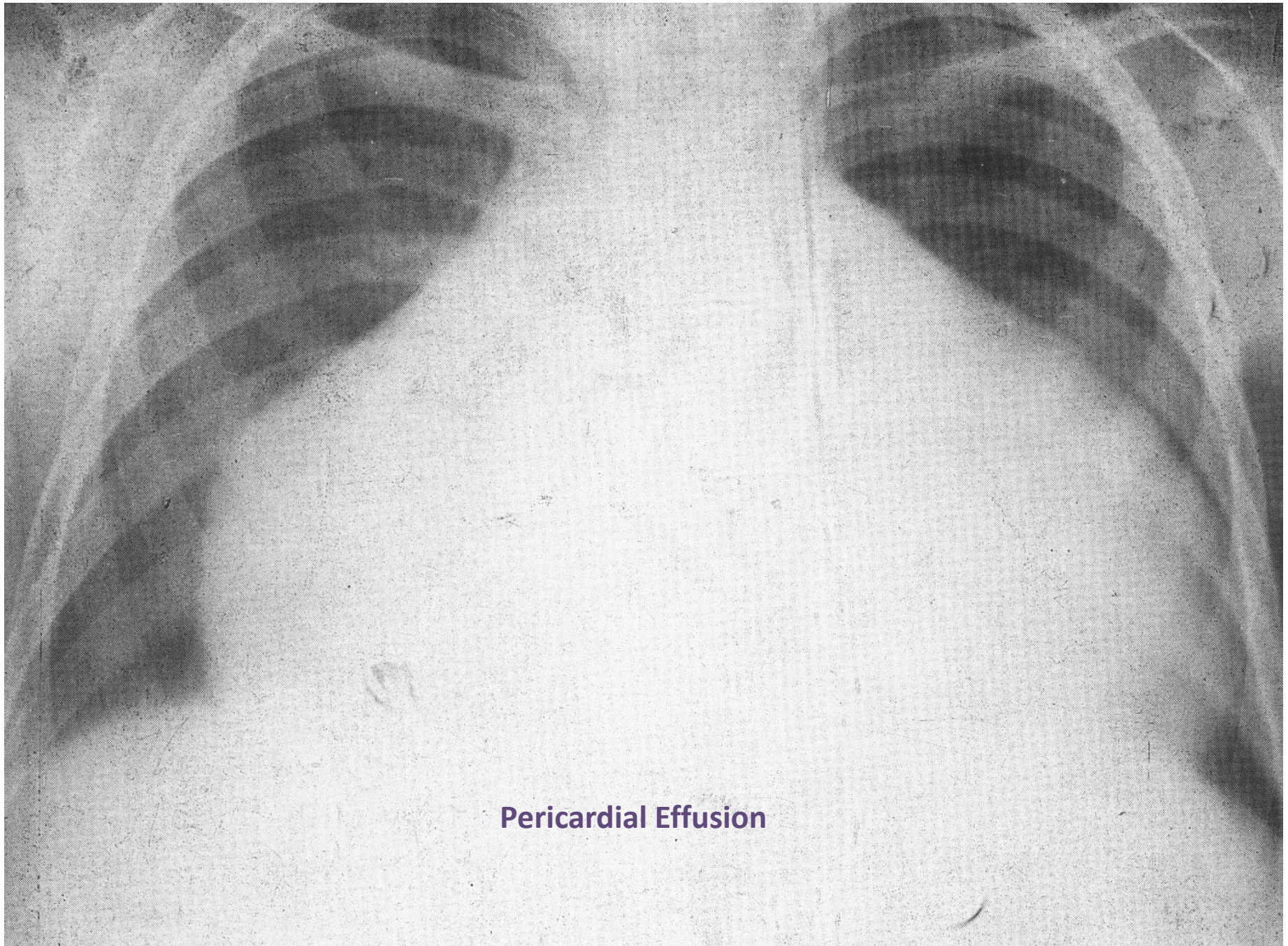


**TGA**



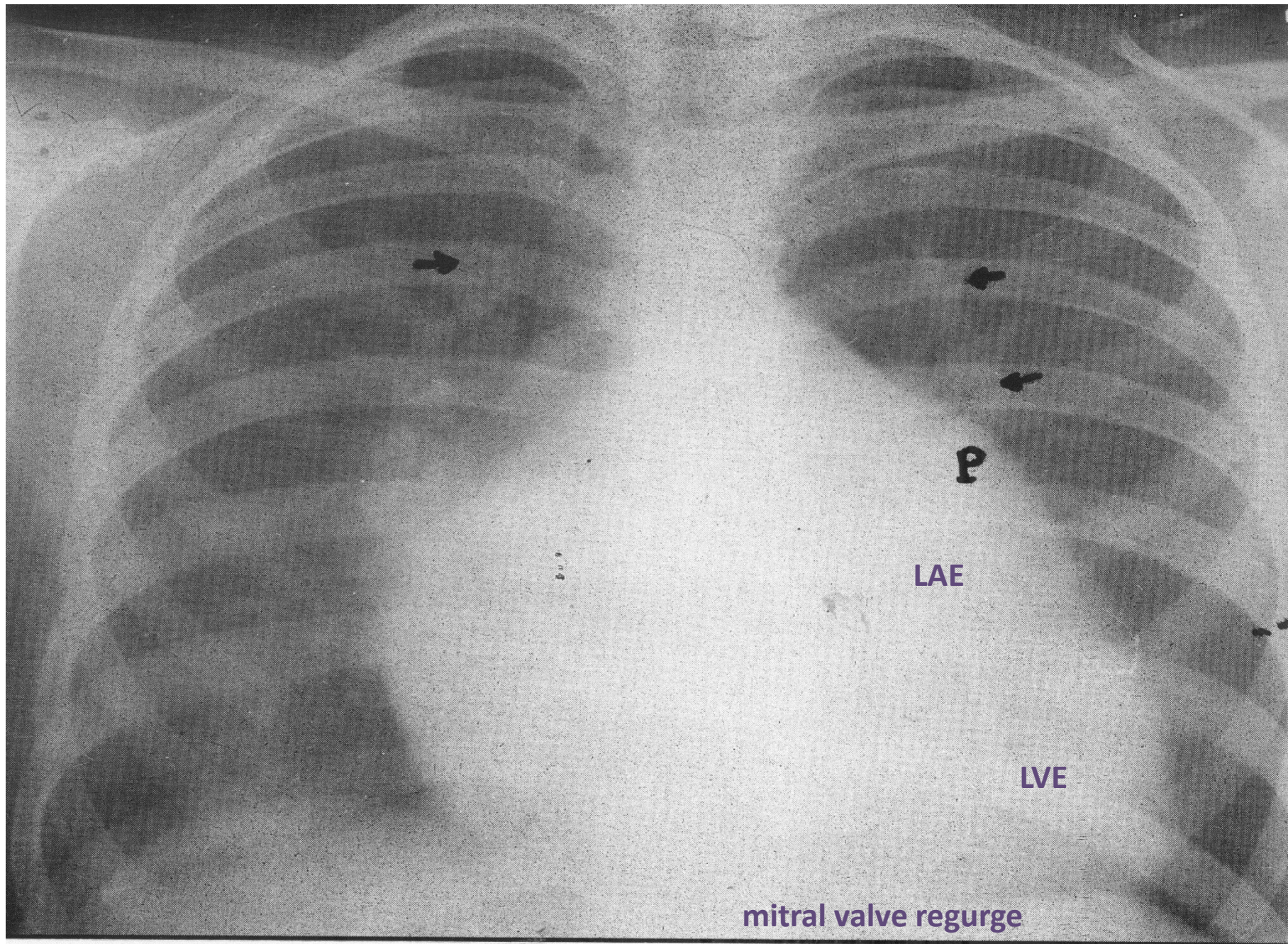
## Pericardial Effusion





**Pericardial Effusion**



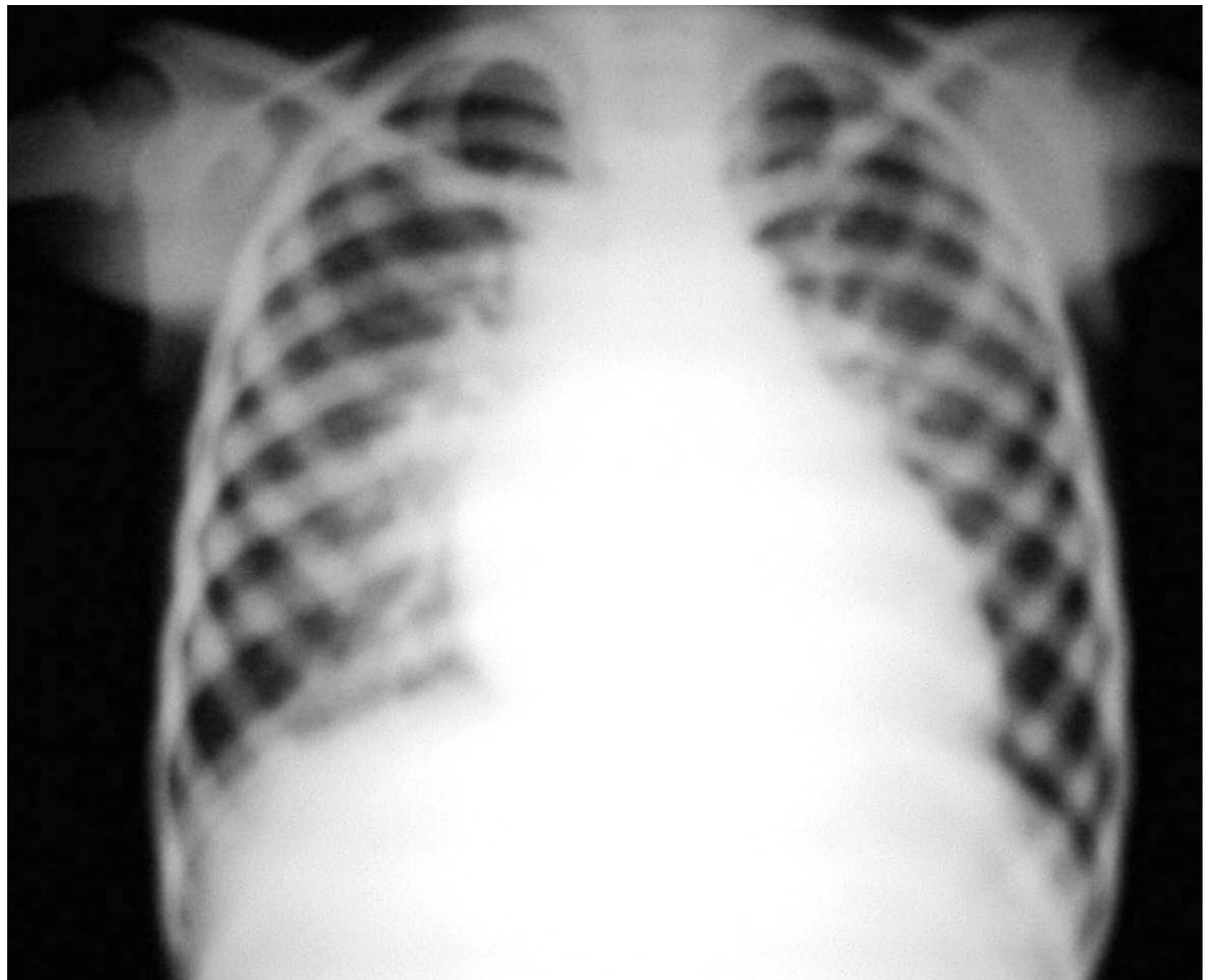


LAE

LVE

mitral valve regurge





# opacity

Homogenous

lob



lobar collapse



lobar pneumonia

Heterogenous patches



lung Metastasis



Bronchopneumonia



Interstitial pneumonia



miliary TB

Air-fluid level



Hydro pneumothorax



lung abscess



pleural effusion

Jet black

opaque hemithorax



massive pleural effusion



Total lung collapse



pneumothorax

staph

## hypertranslucency

Jet black (No BVMs)



pneumothorax

↓ BVMs

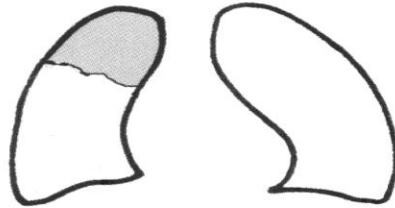


flat-depressed cupola

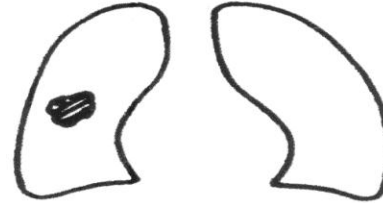
Emphysema

## Lung Field Opacities

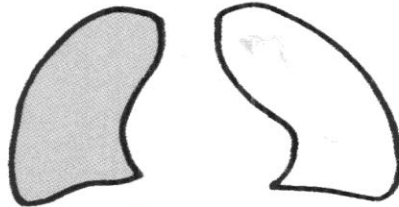
**Lobar opacity**



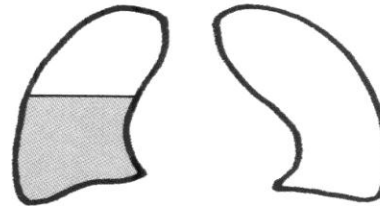
**Patchy opacity**



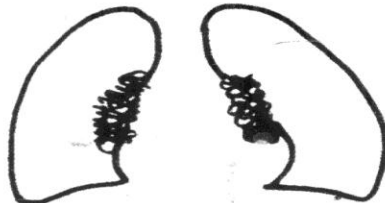
**Opaque hemithorax**



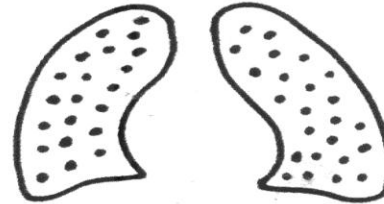
**Air-fluid level**



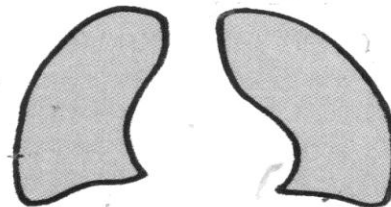
**Dense hilar shadow**



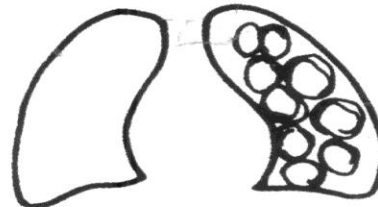
**Pulmonary infiltrate**



**White lungs**



**Multiple cysts**



## Lobar Consolidation

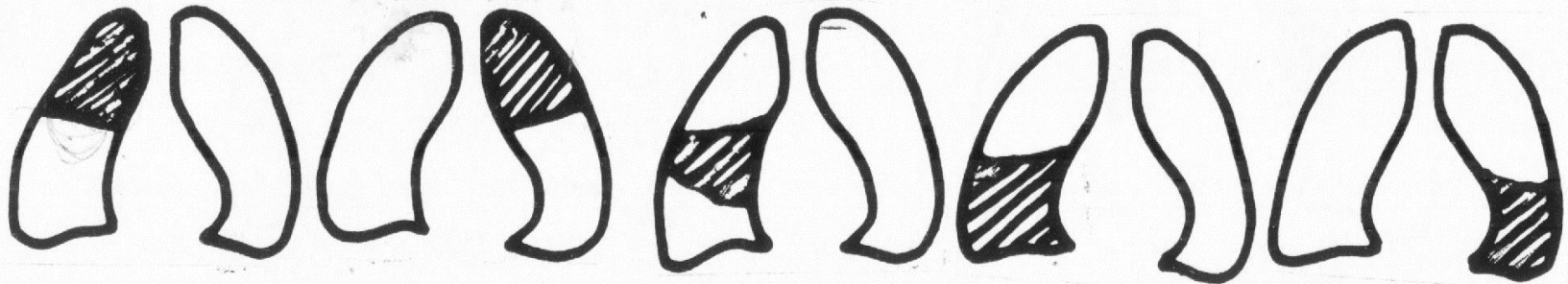
R. upper lobe

L. upper lobe

R. middle lobe

R. lower lobe

L. lower lobe



## Lobar Collapse

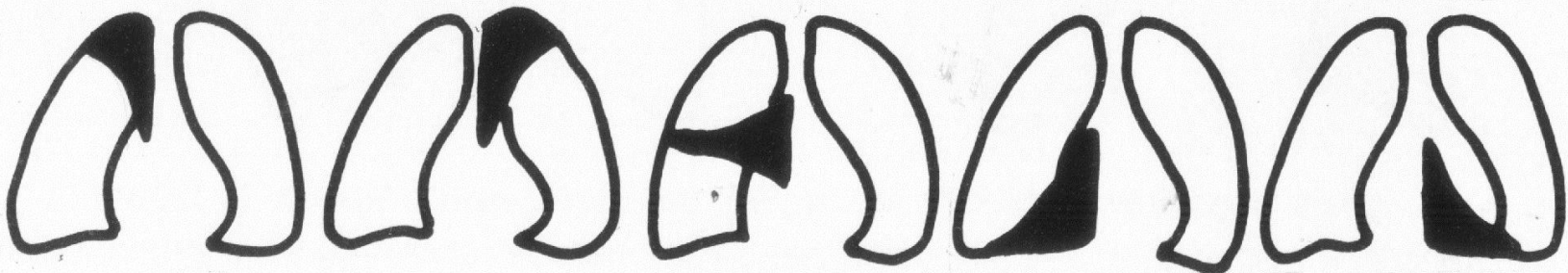
R. upper lobe

L. upper lobe

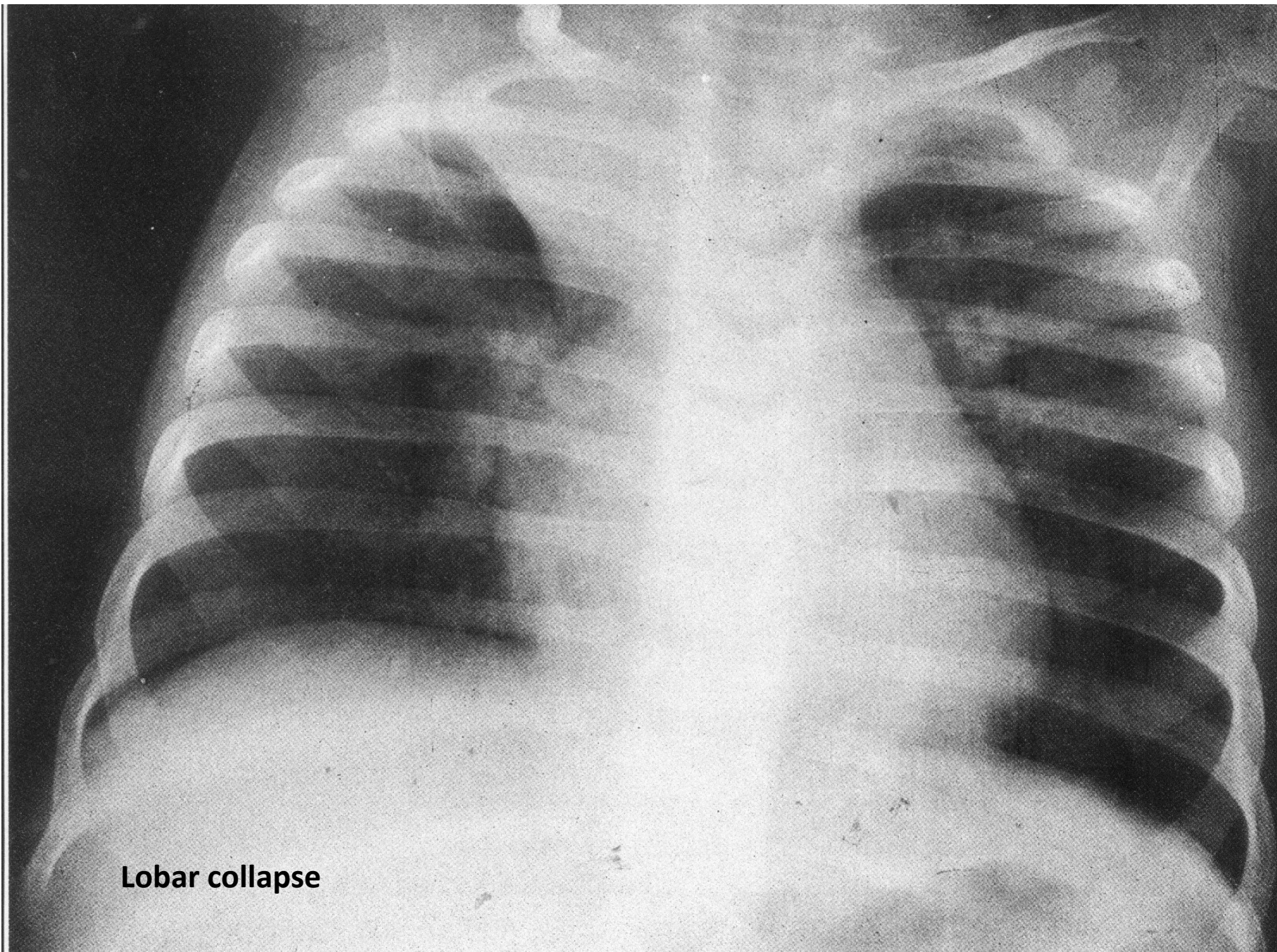
R. middle lobe

R. lower lobe

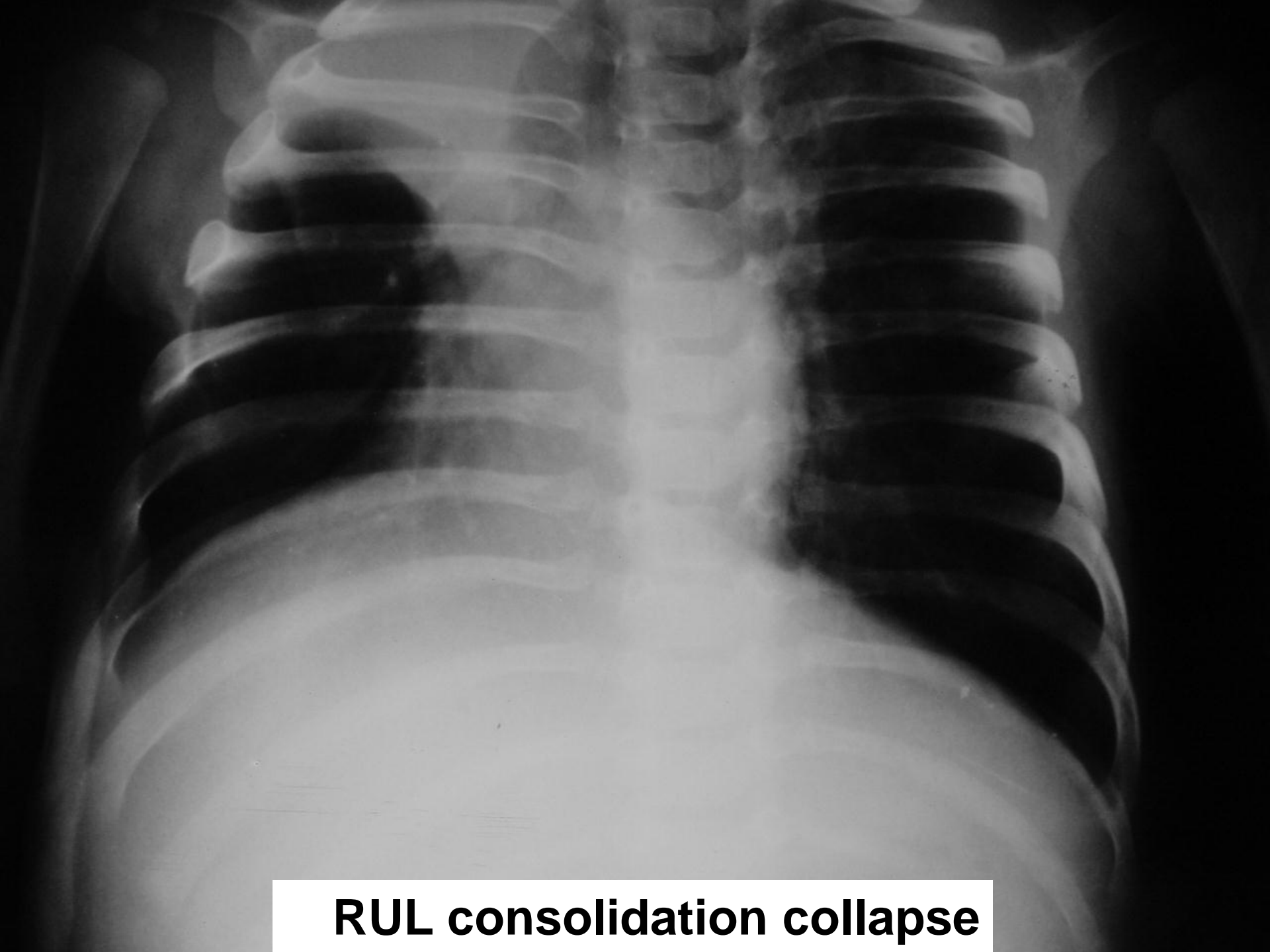
L. lower lobe





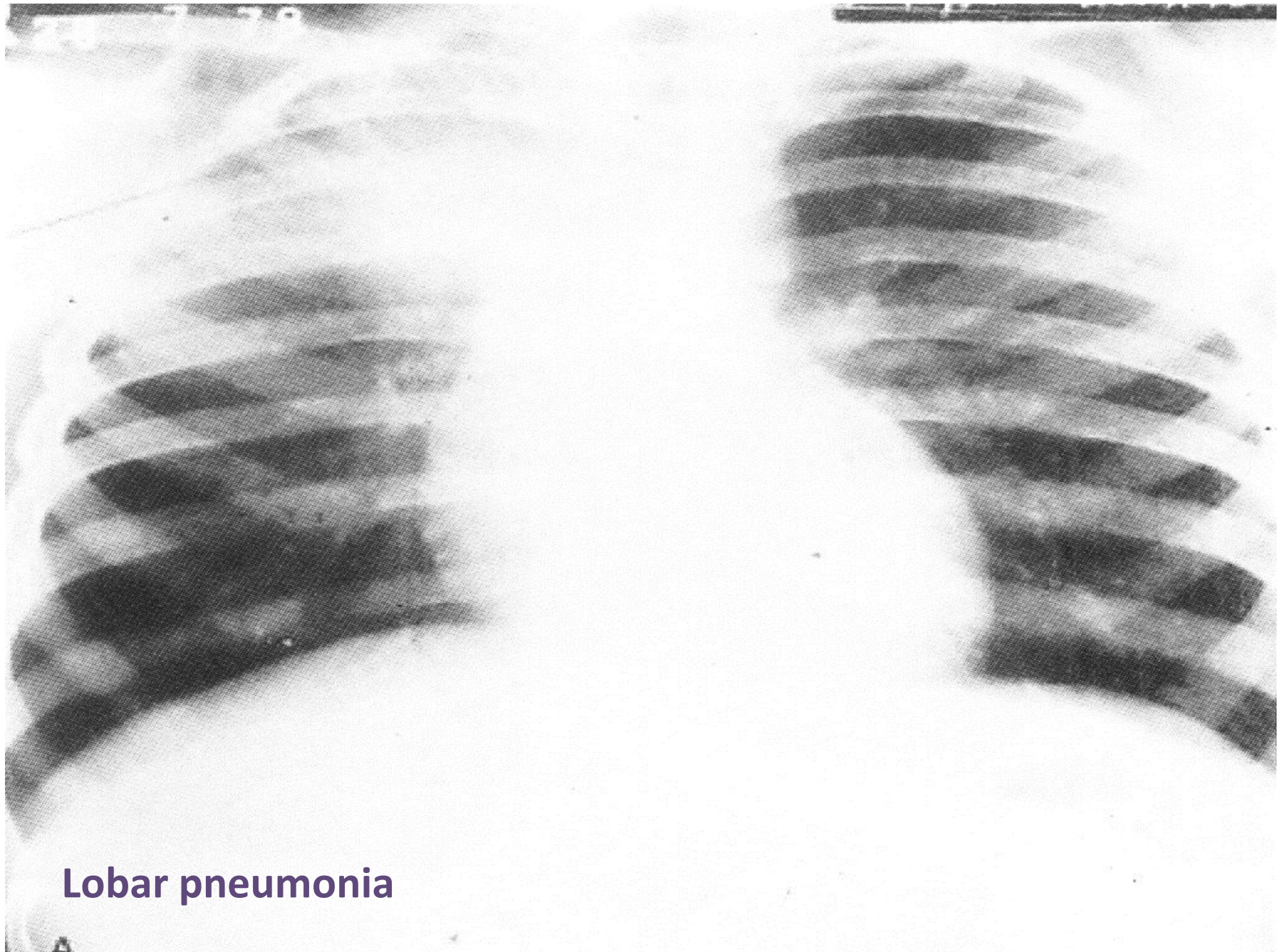


**Lobar collapse**



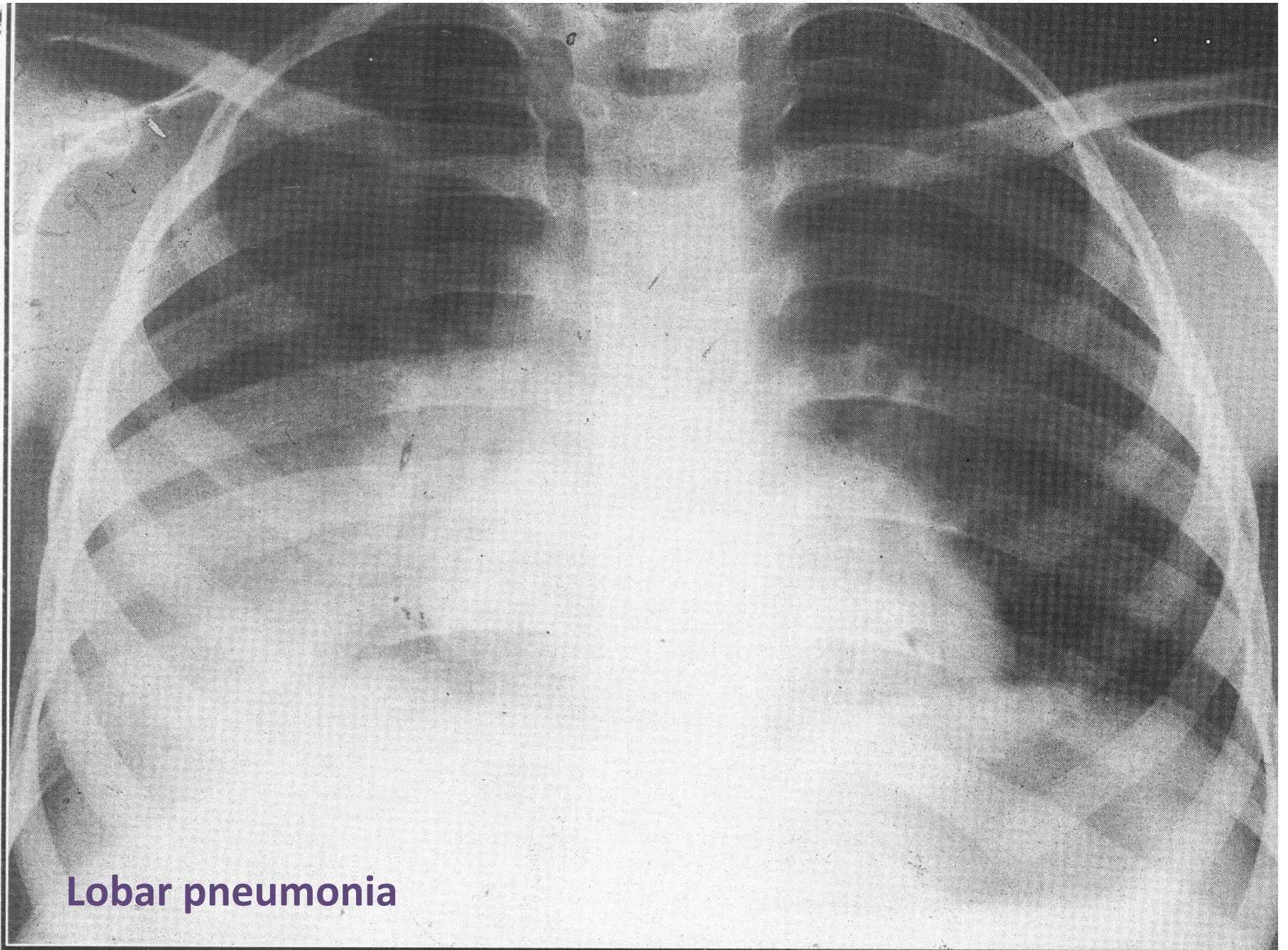
**RUL consolidation collapse**





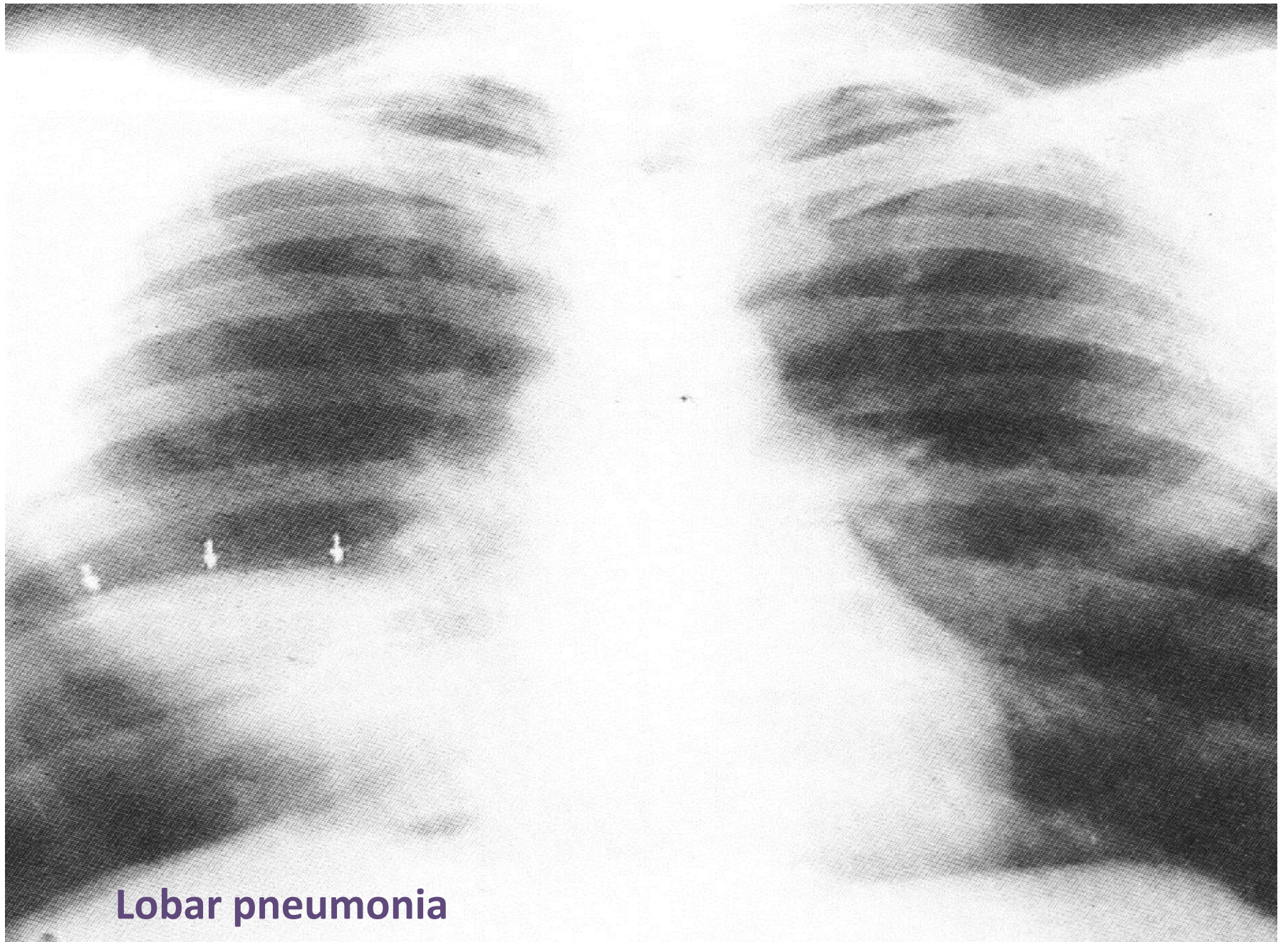
**Lobar pneumonia**





**Lobar pneumonia**





**Lobar pneumonia**



MANSOURA UNIVERSITY CHILDREN HOSPITAL

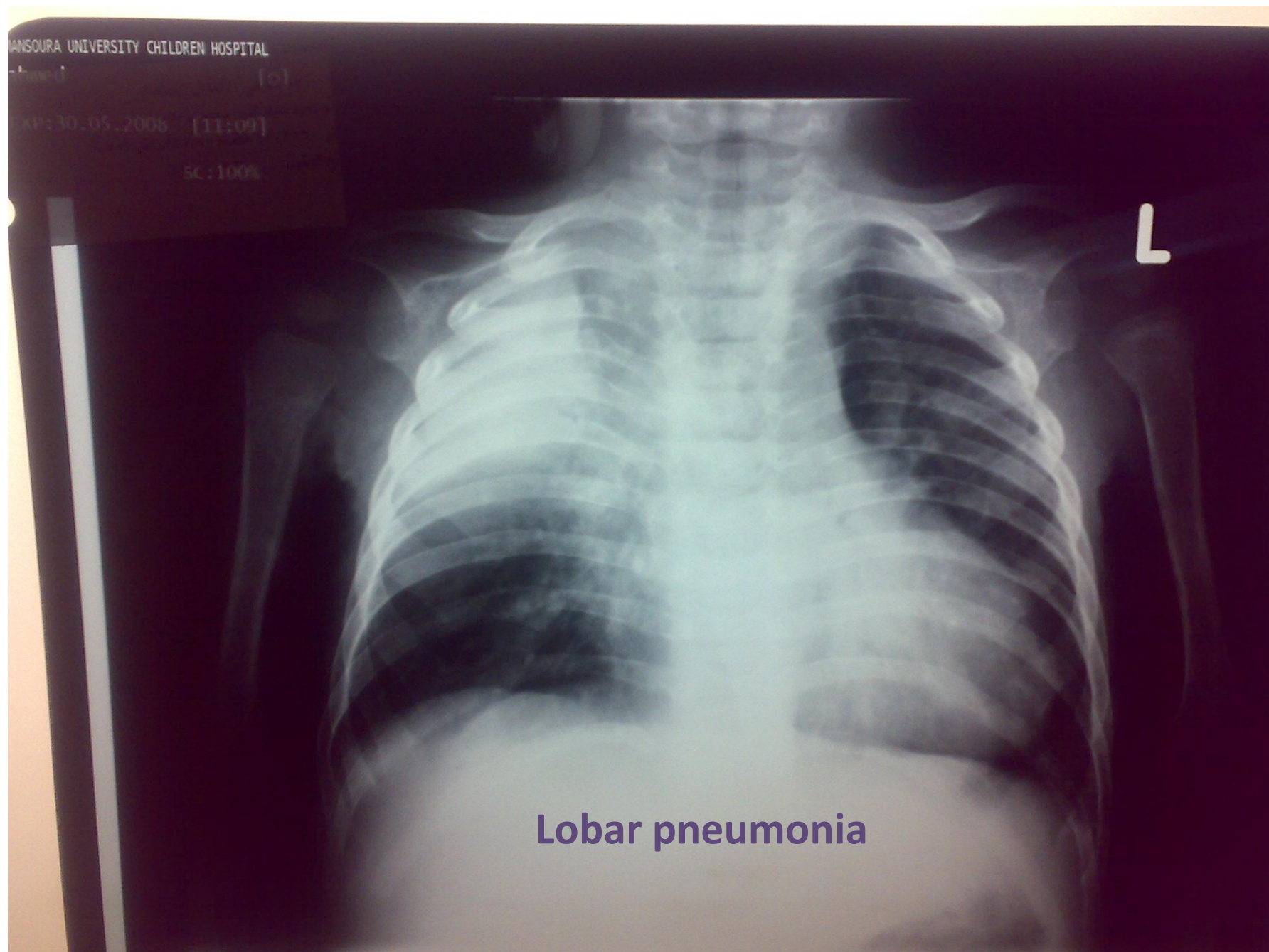
name: [ ]

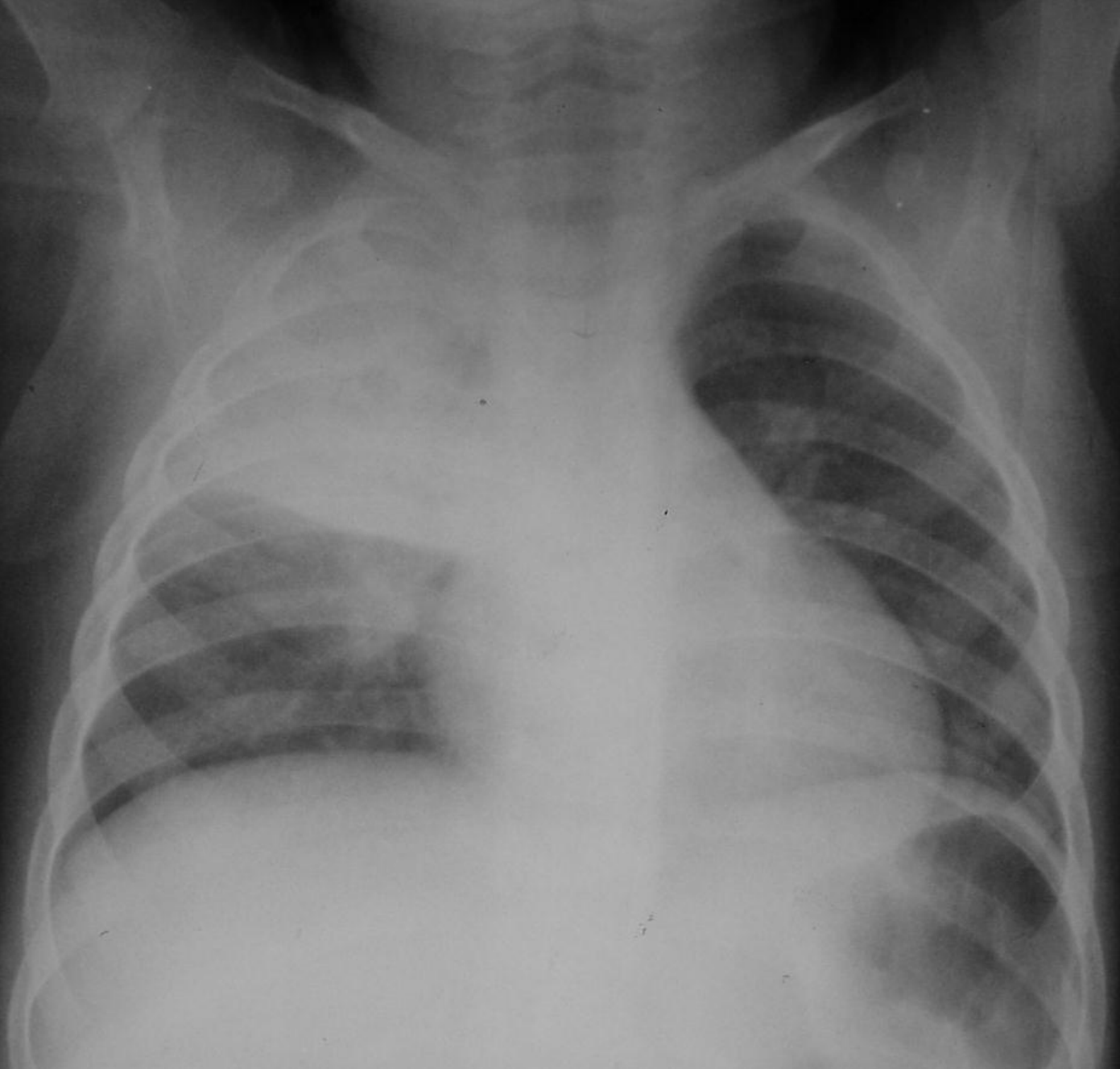
EXP: 30.05.2006 [11:09]

SC: 100%

L

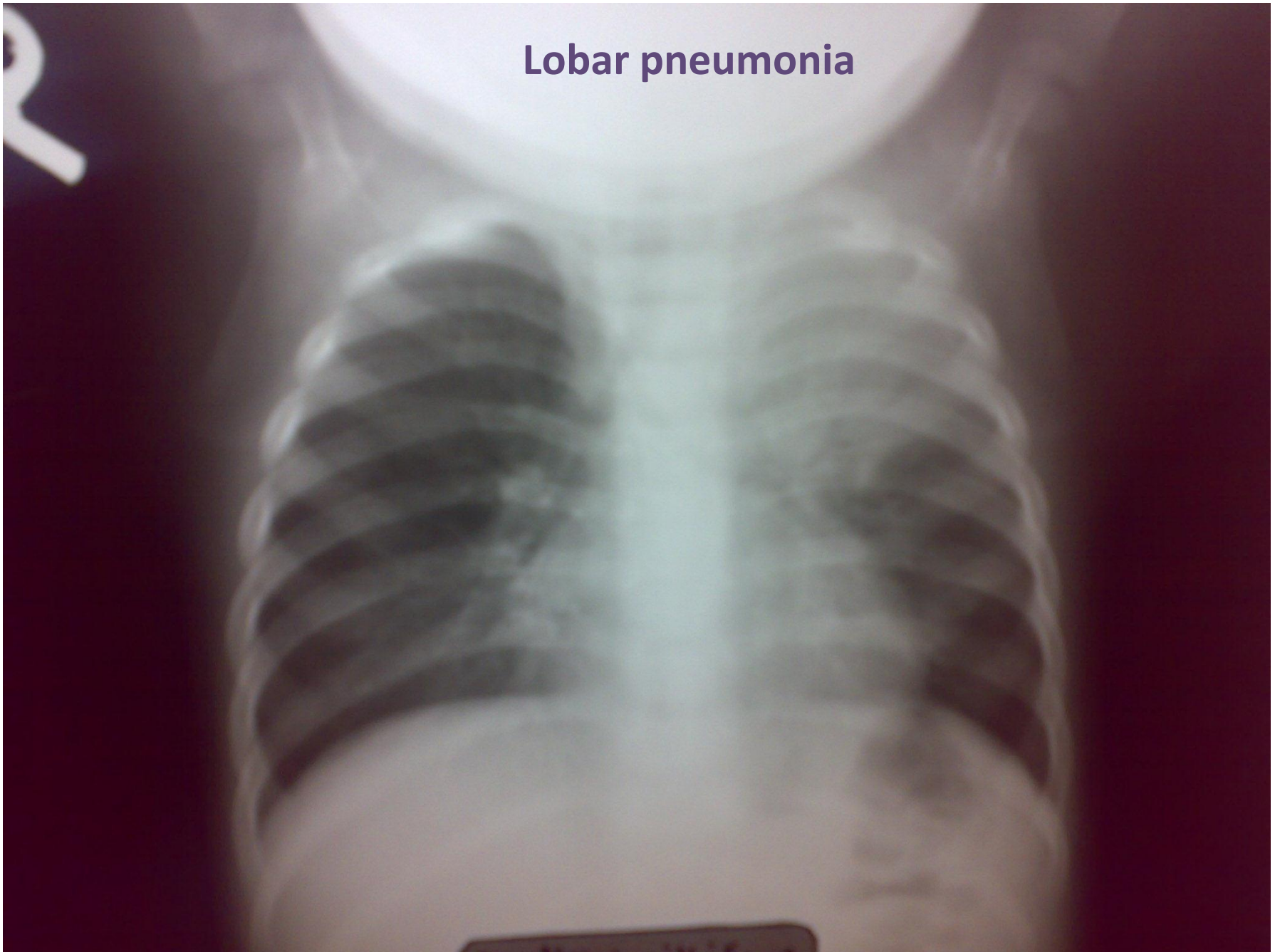
**Lobar pneumonia**



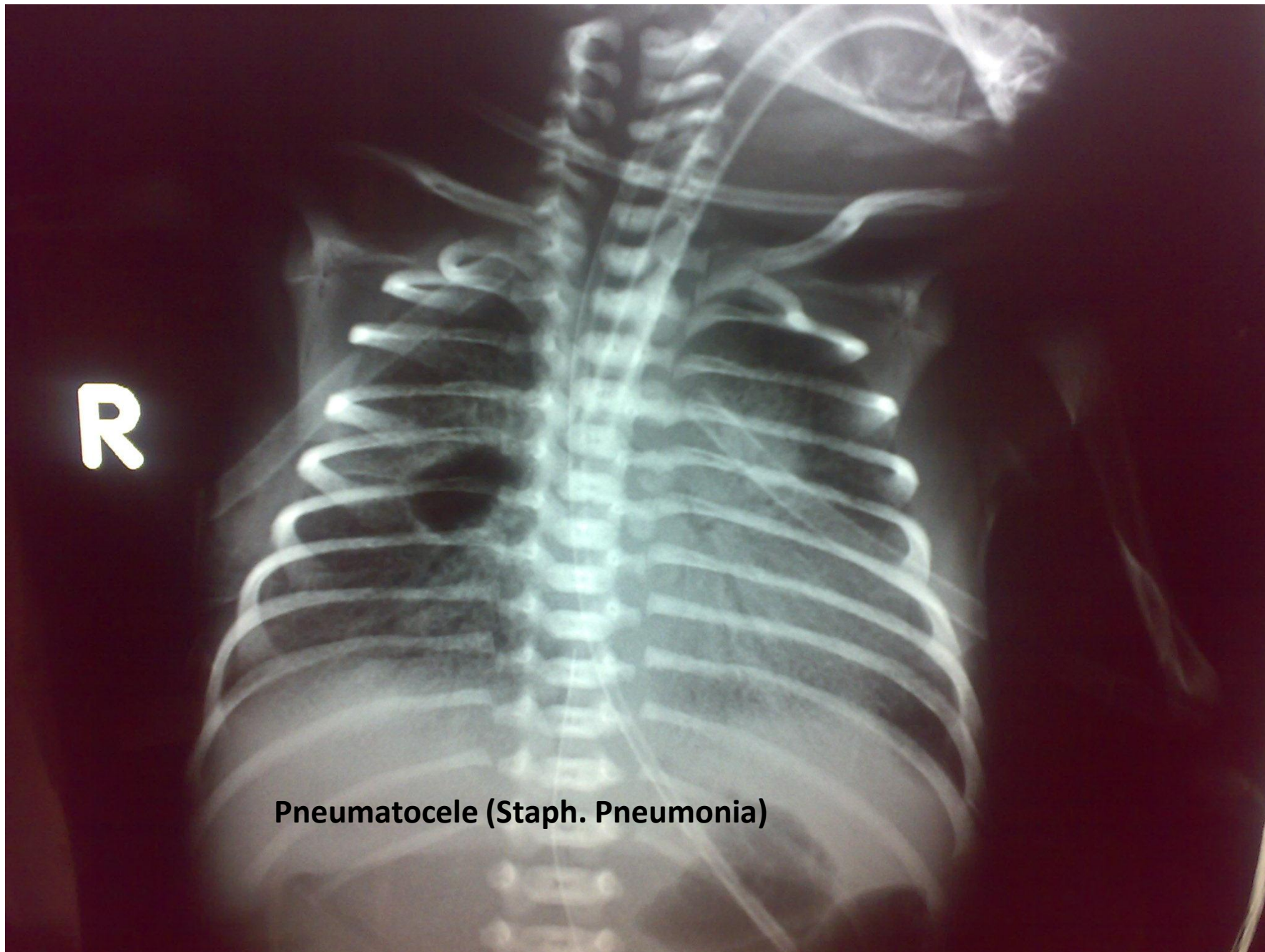


**RUL consolidation**

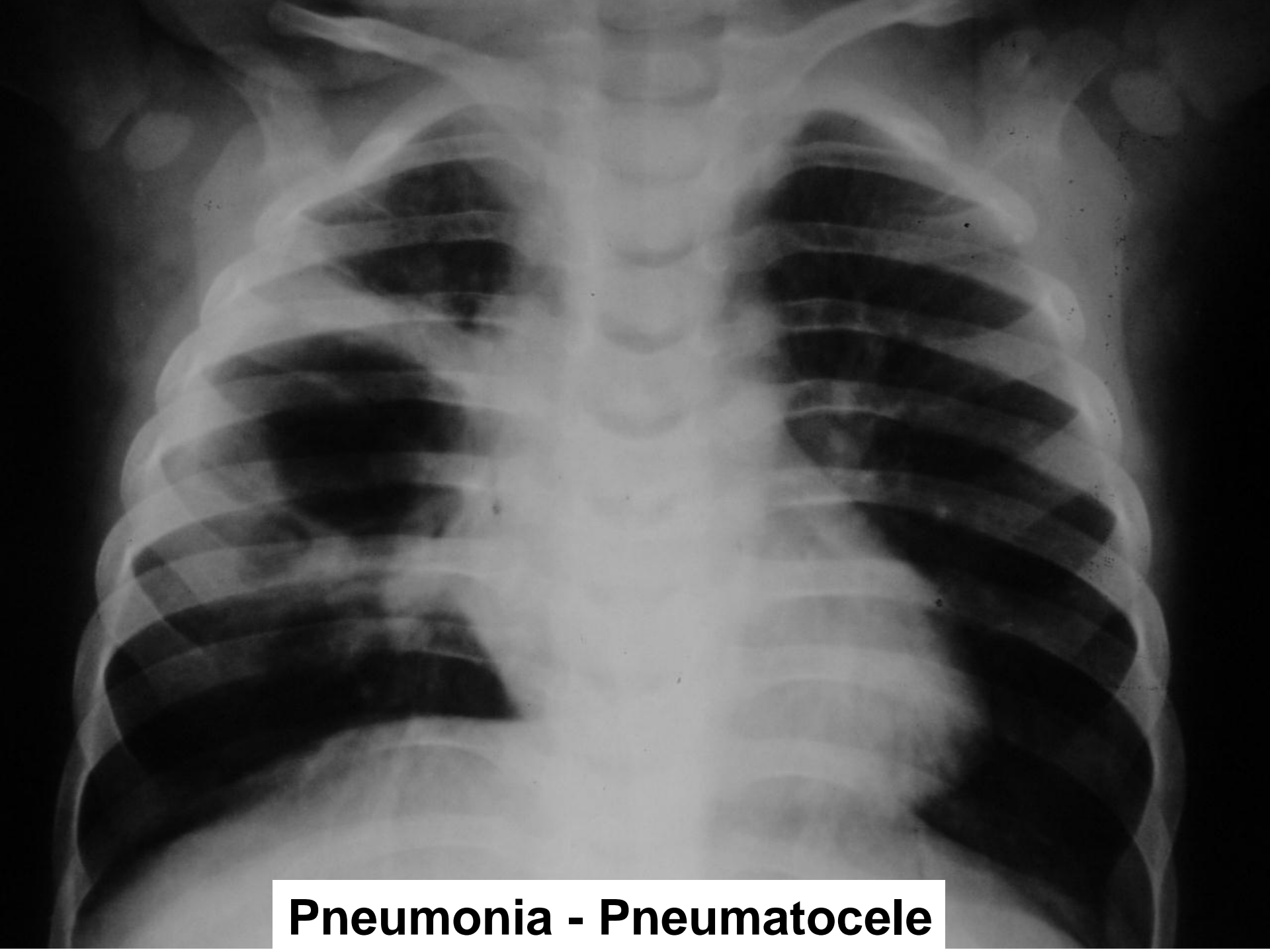
## Lobar pneumonia





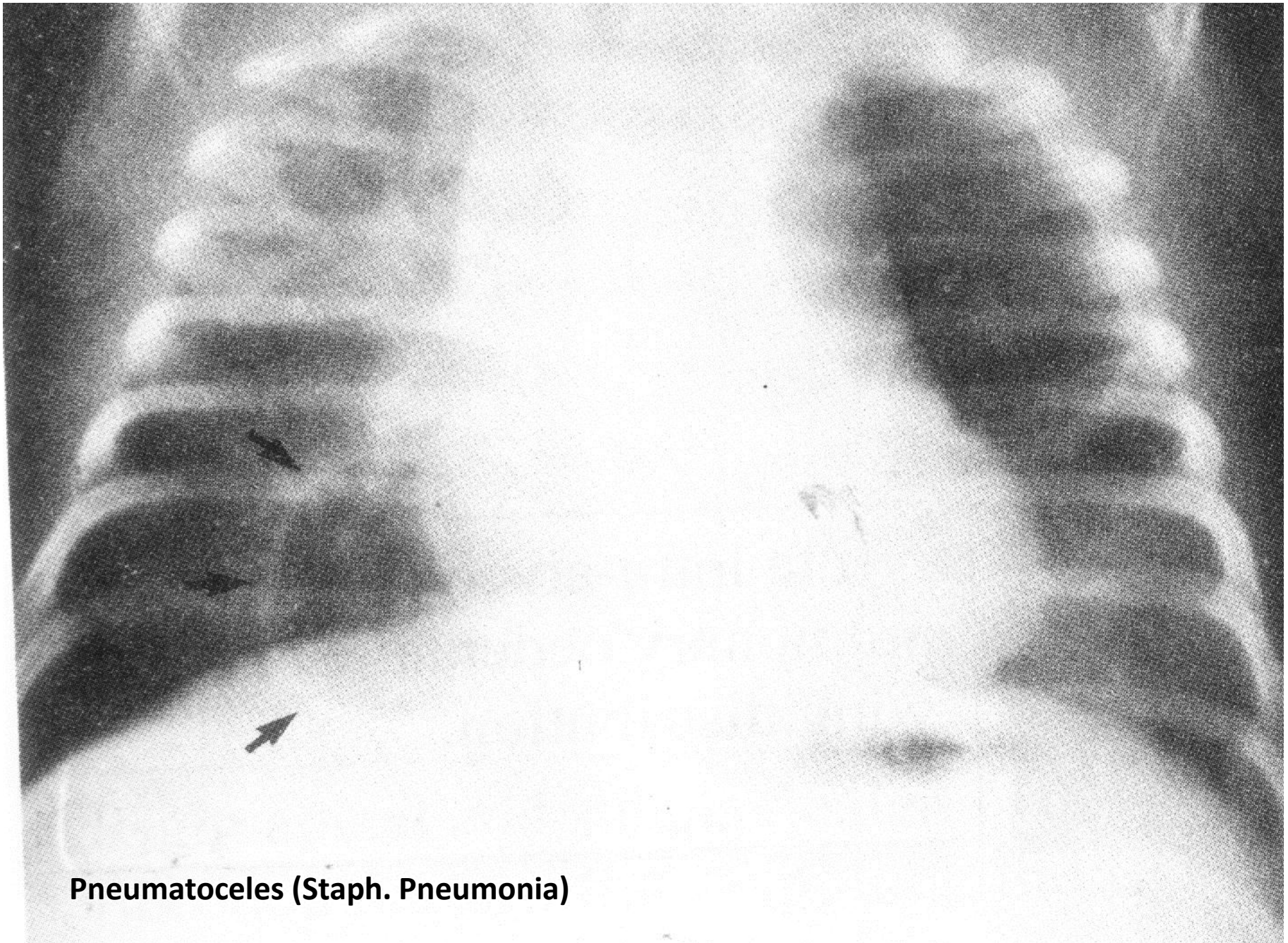


**Pneumatocele (Staph. Pneumonia)**



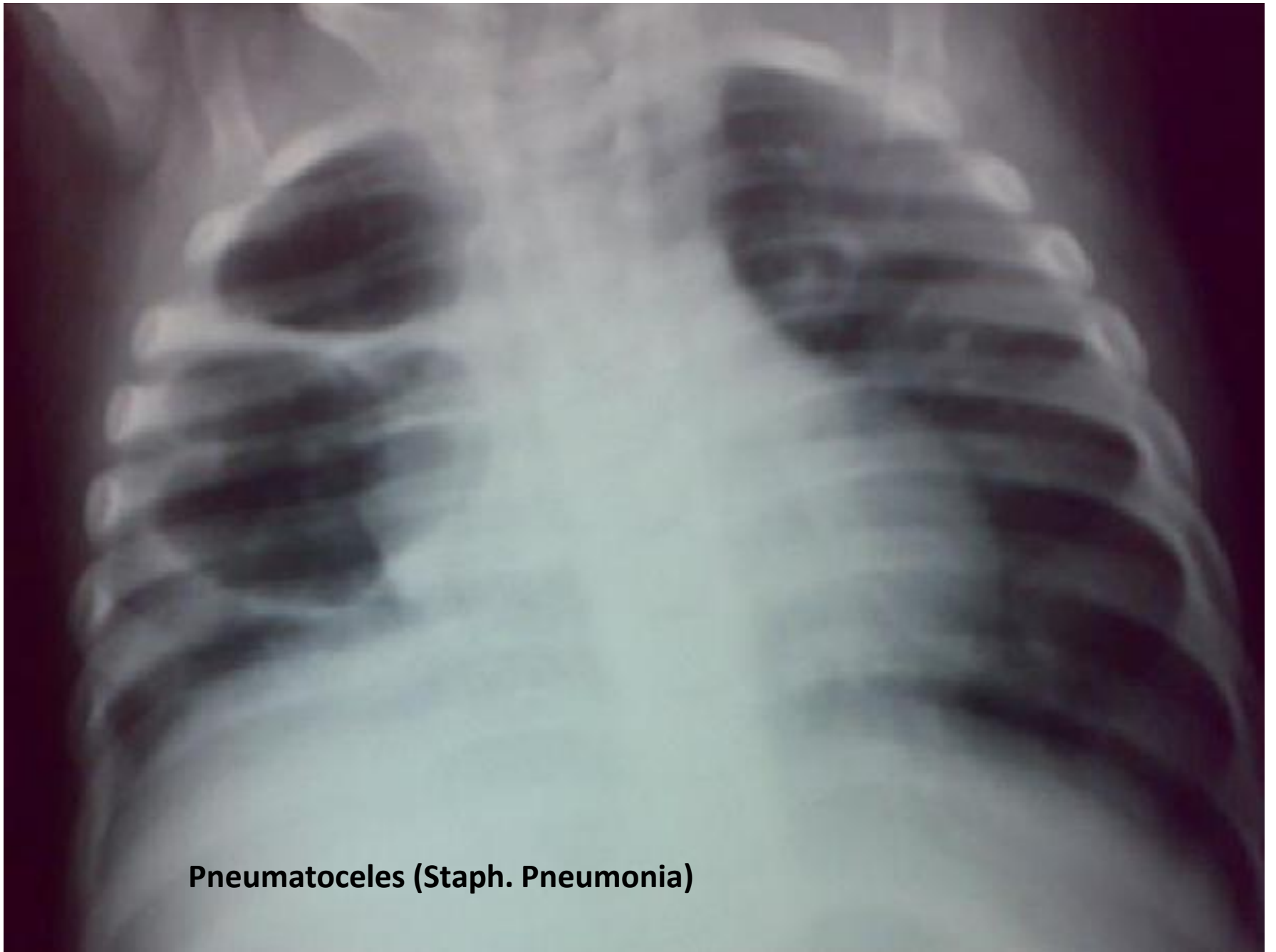
**Pneumonia - Pneumatocele**





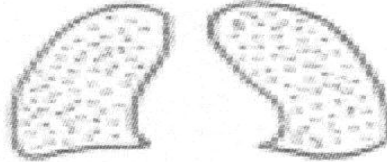
**Pneumatocoeles (Staph. Pneumonia)**



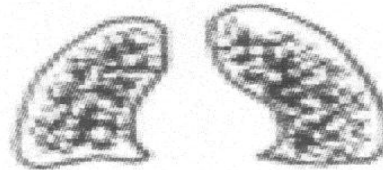


**Pneumatocelles (Staph. Pneumonia)**

**Miliary**



**Reticulonodular**



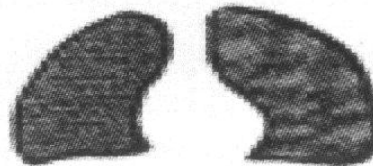
**Patchy or fluffy**



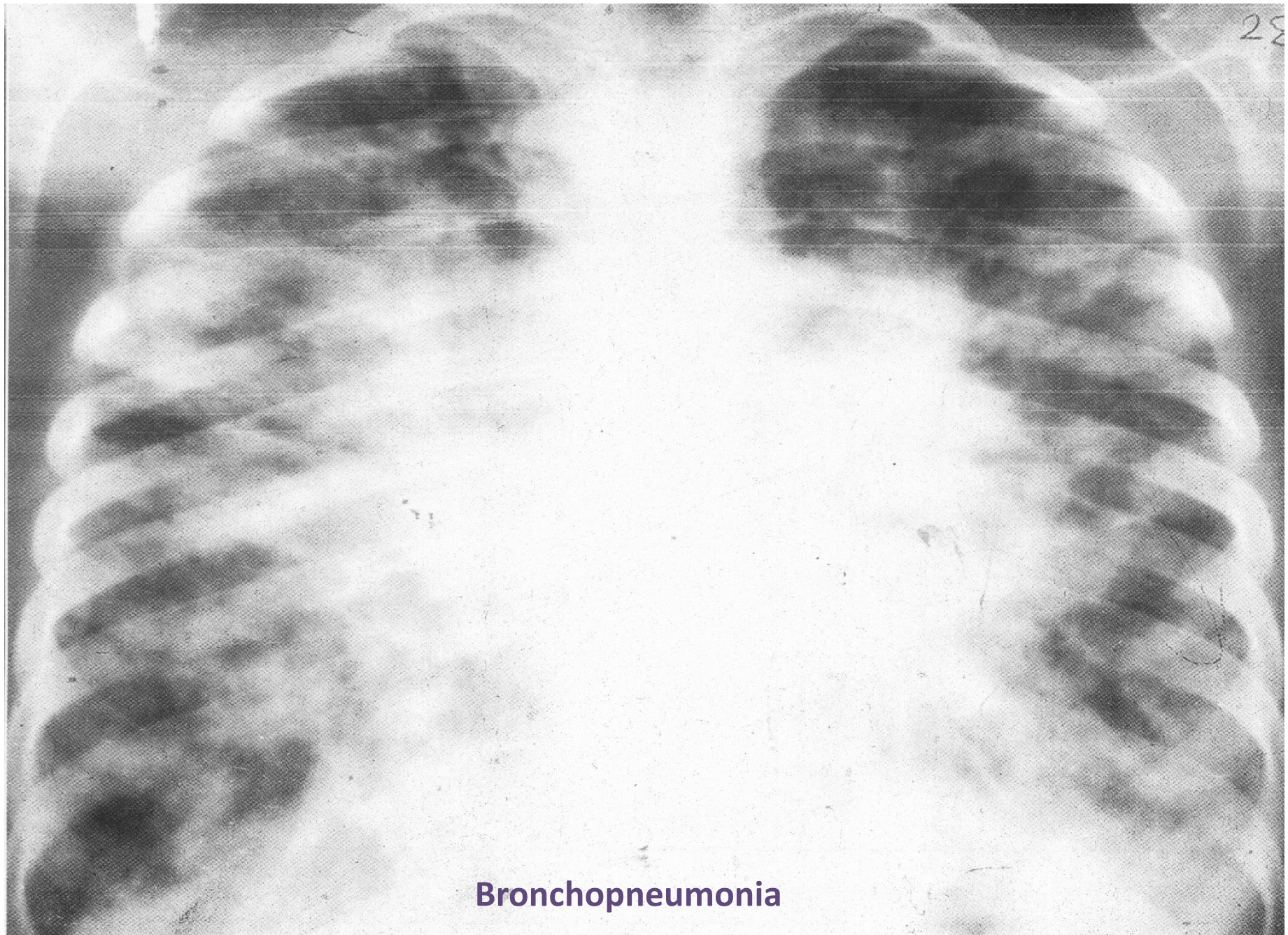
**Parahilar**



**Hazy to opaque**

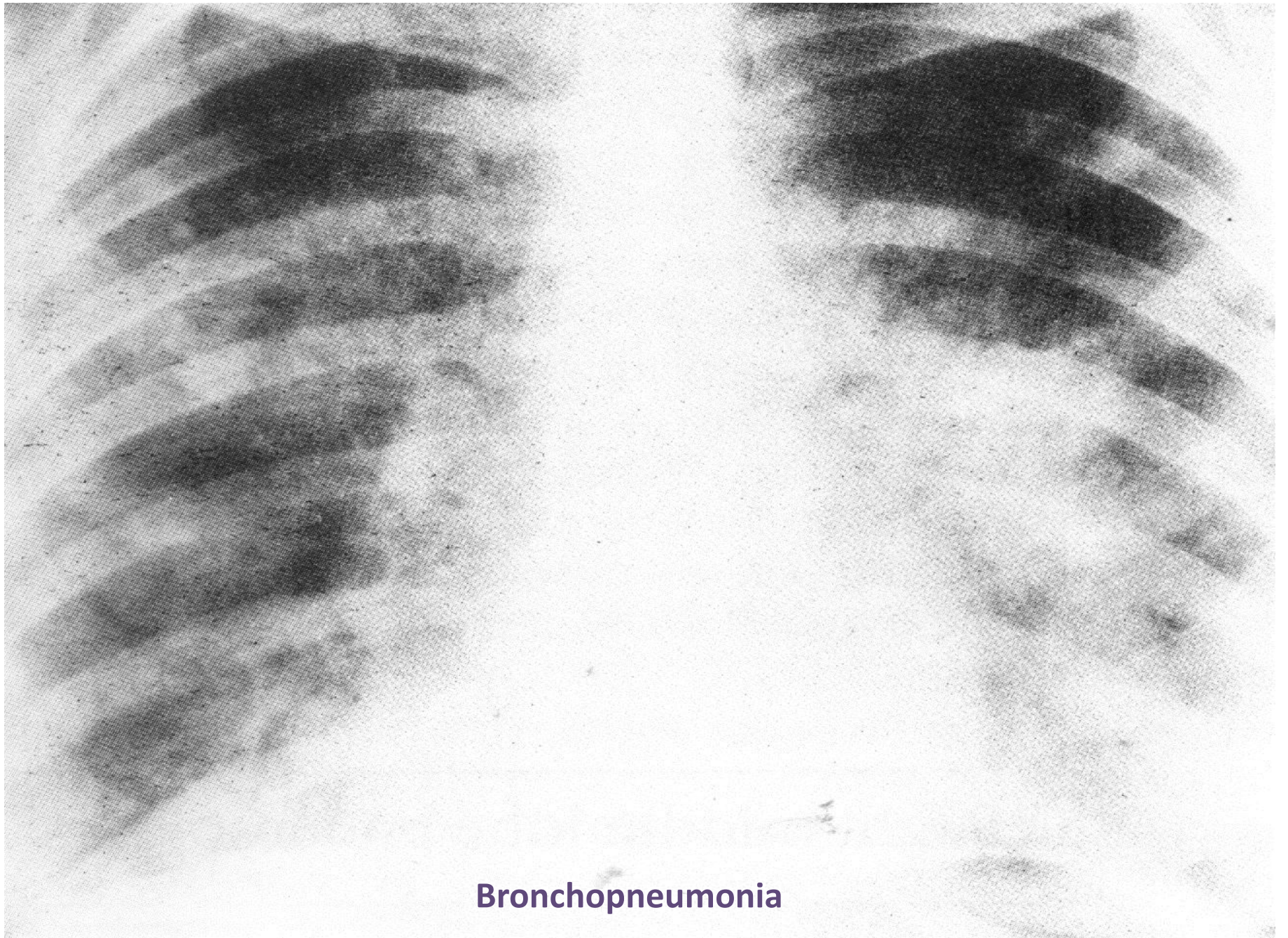






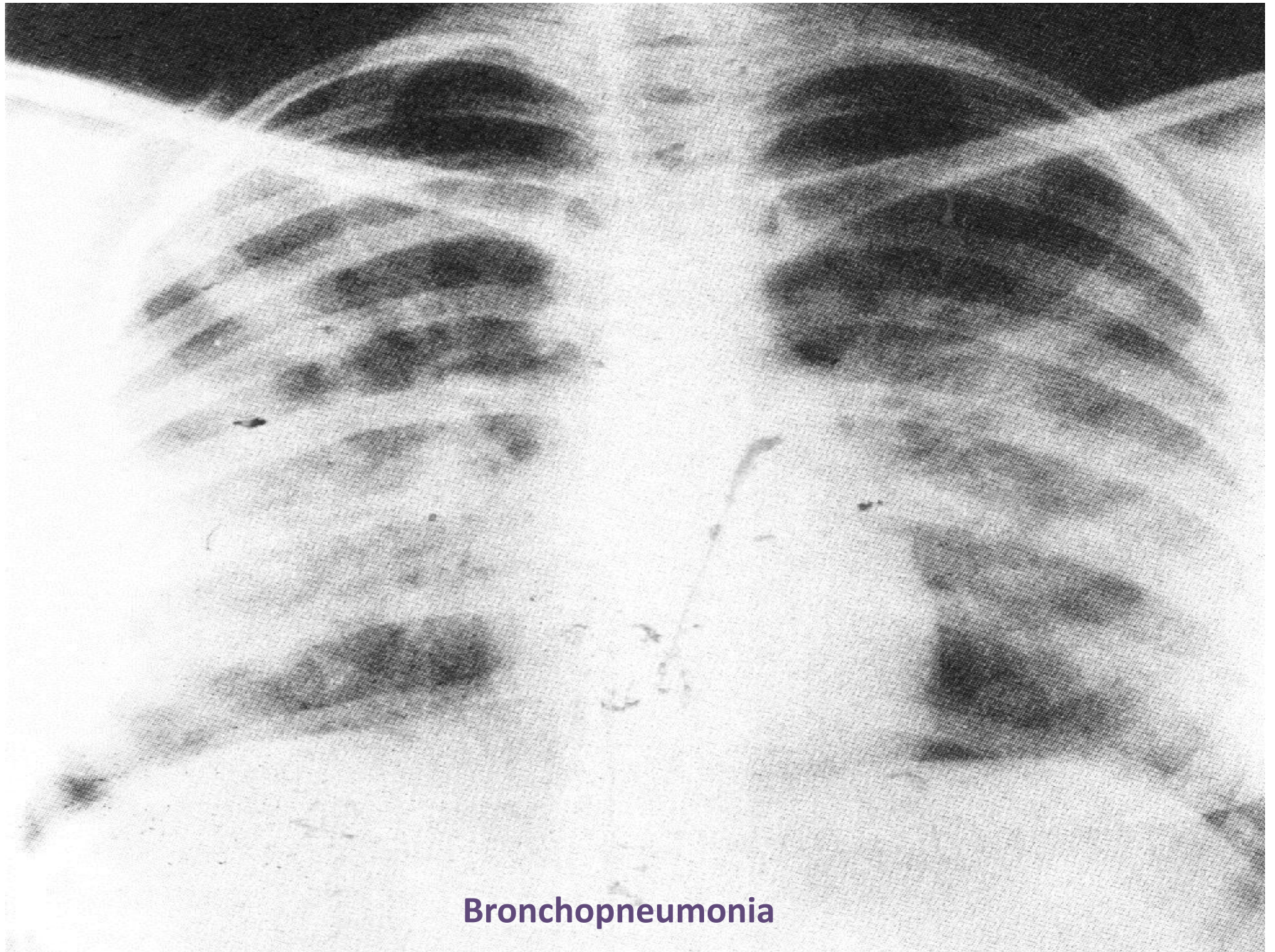
**Bronchopneumonia**





**Bronchopneumonia**





**Bronchopneumonia**

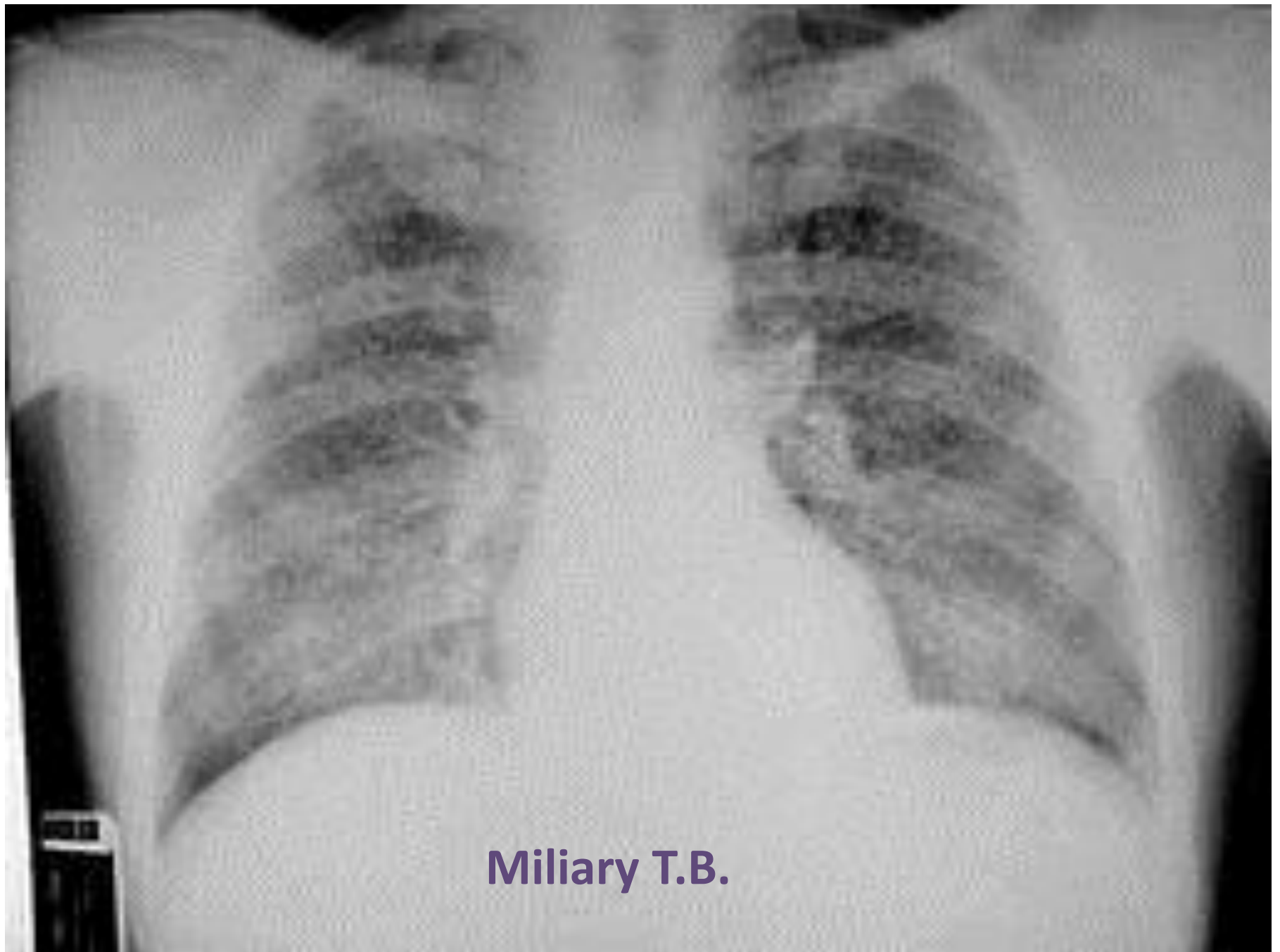




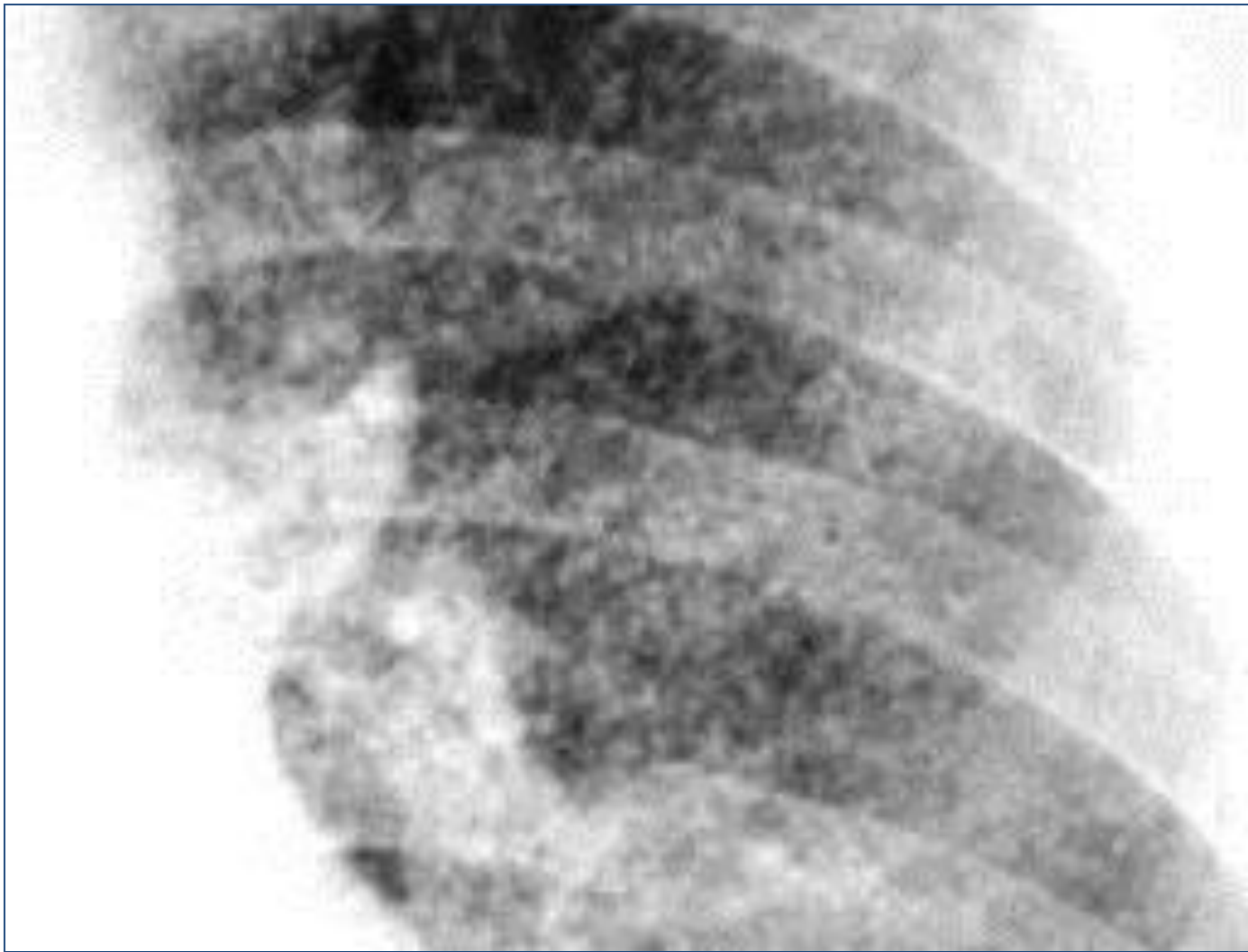
**Bronchopneumonia (Interstitial pneumonia)**  
**Parahilar peribronchovascular infiltration**

This is a black and white anteroposterior (AP) chest radiograph. The image shows the bony structures of the thorax, including the ribs and spine. The lung fields are visible, and there is a notable thickening of the peribronchovascular bundles, particularly in the perihilar regions, which is characteristic of bronchopneumonia or interstitial pneumonia. The text overlay at the bottom identifies the condition and the specific radiographic finding.





**Miliary T.B.**

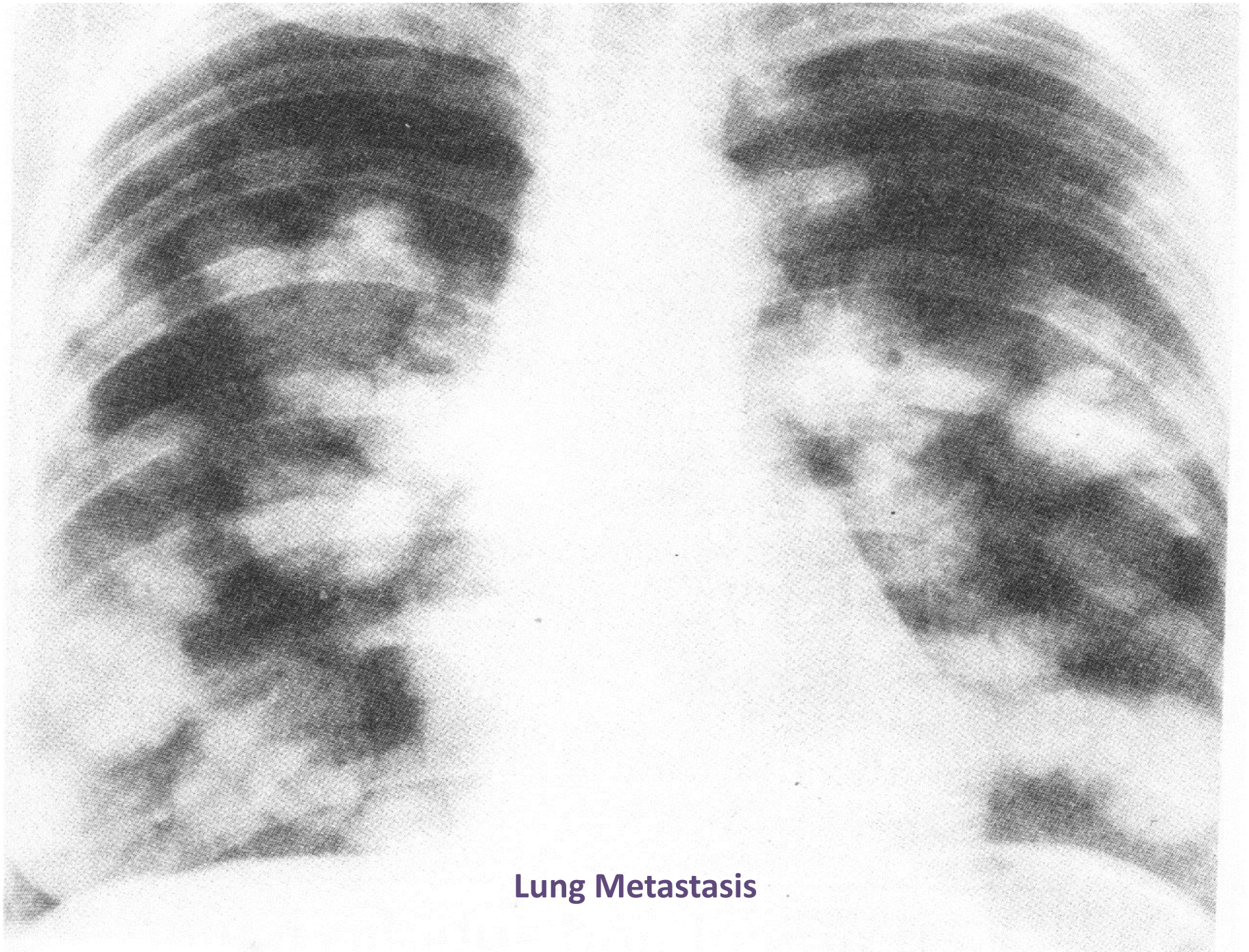


**Miliary T.B.**



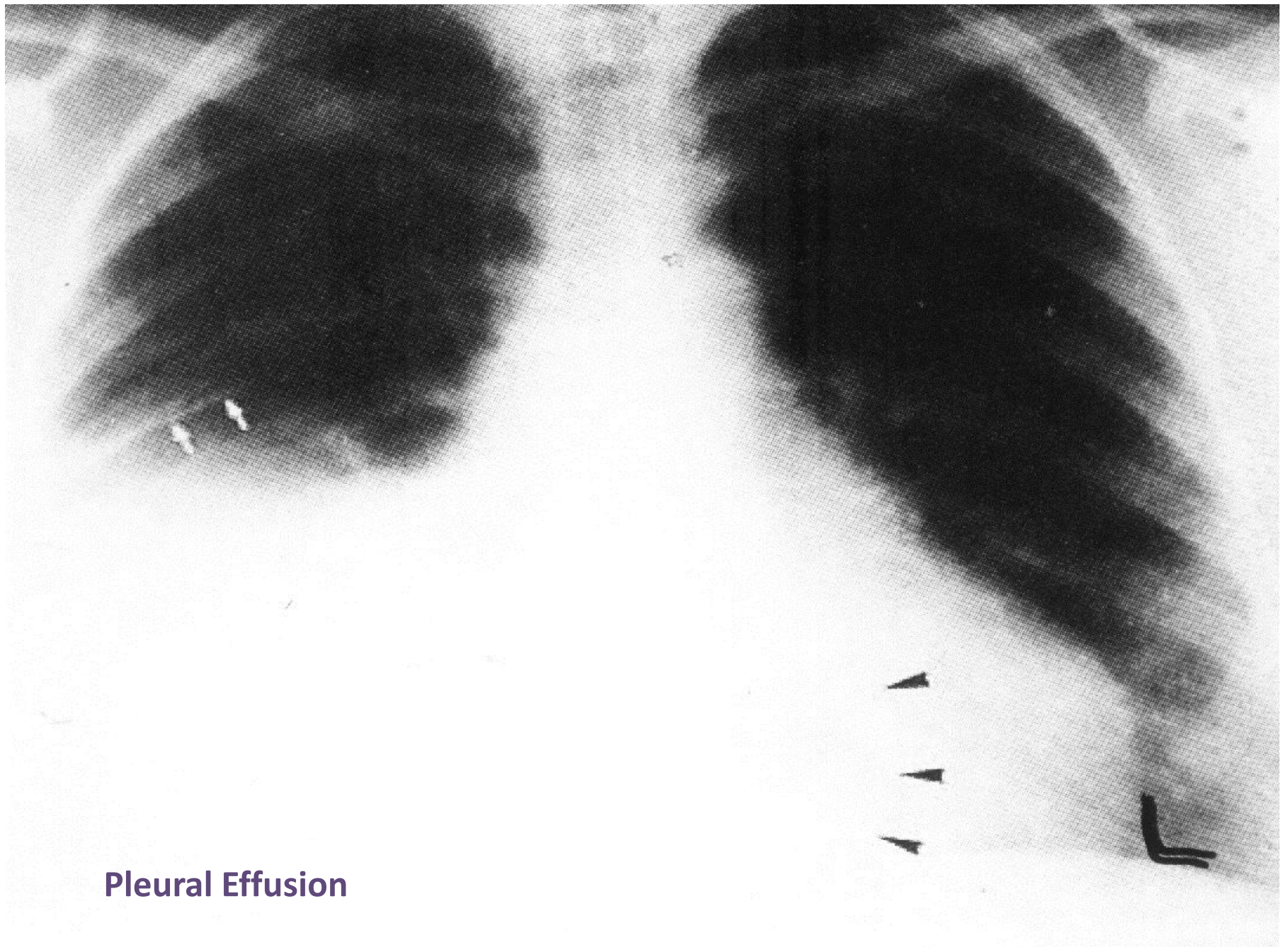
**Miliary T.B.**





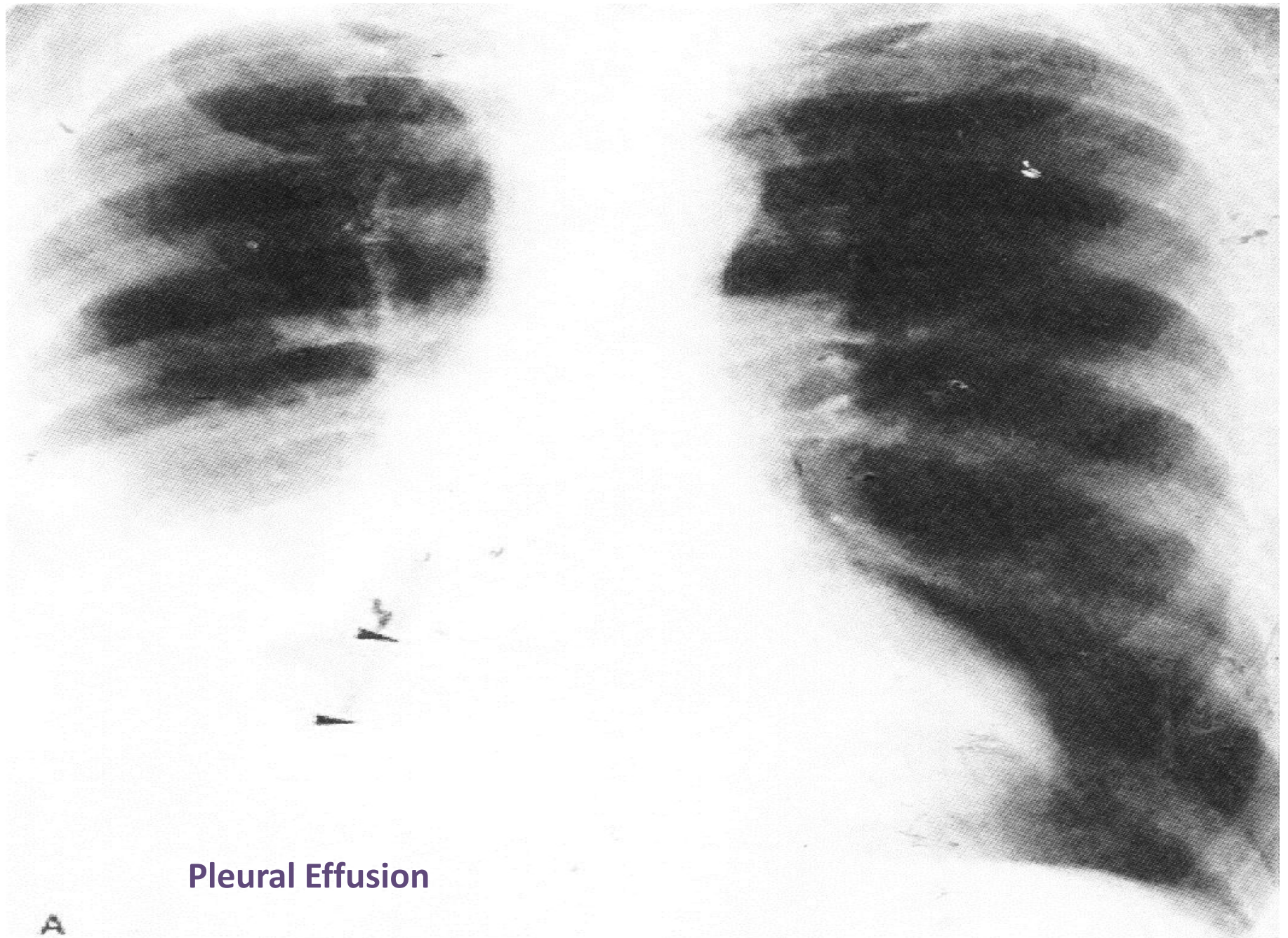
**Lung Metastasis**





**Pleural Effusion**

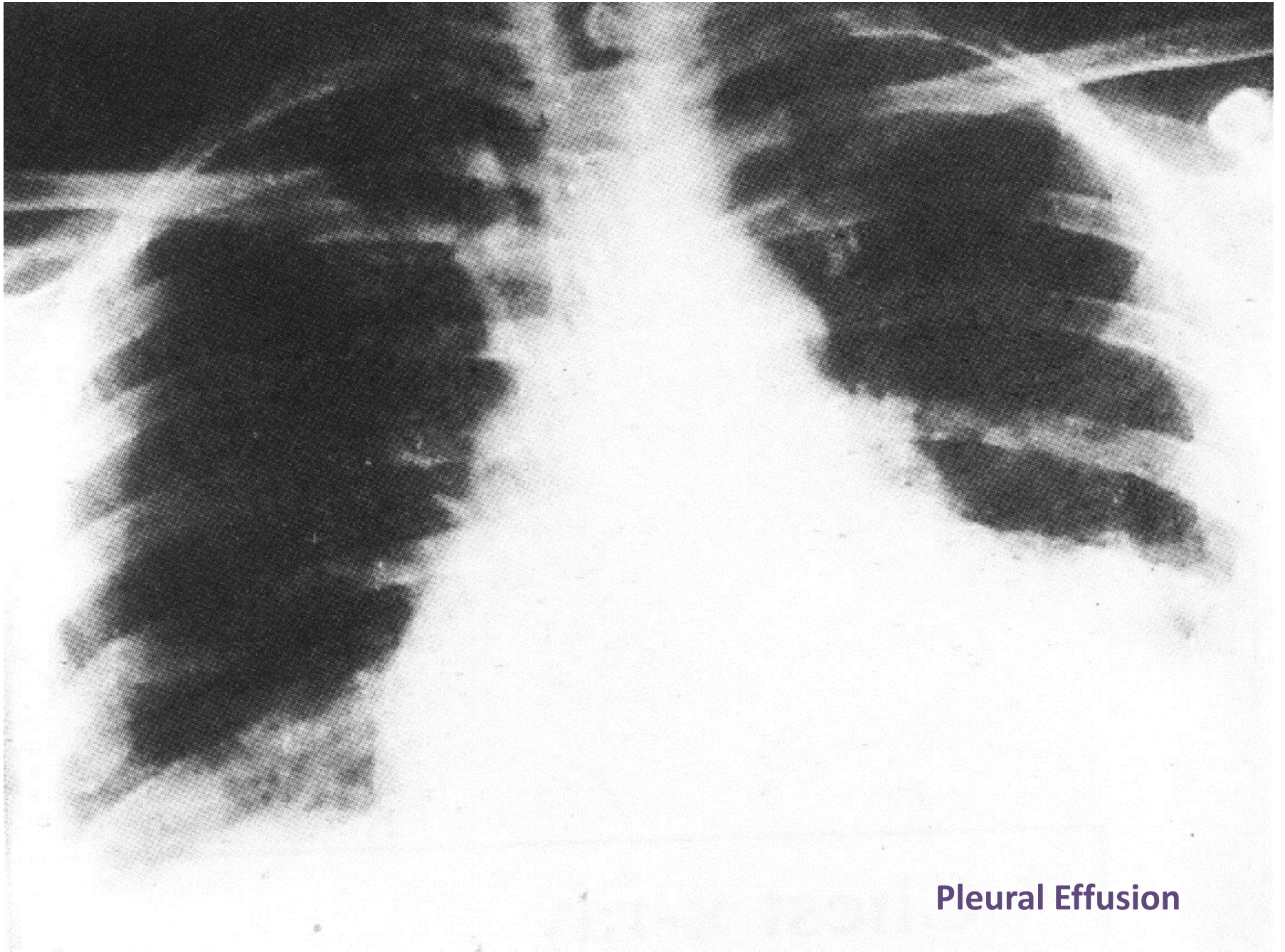




Pleural Effusion

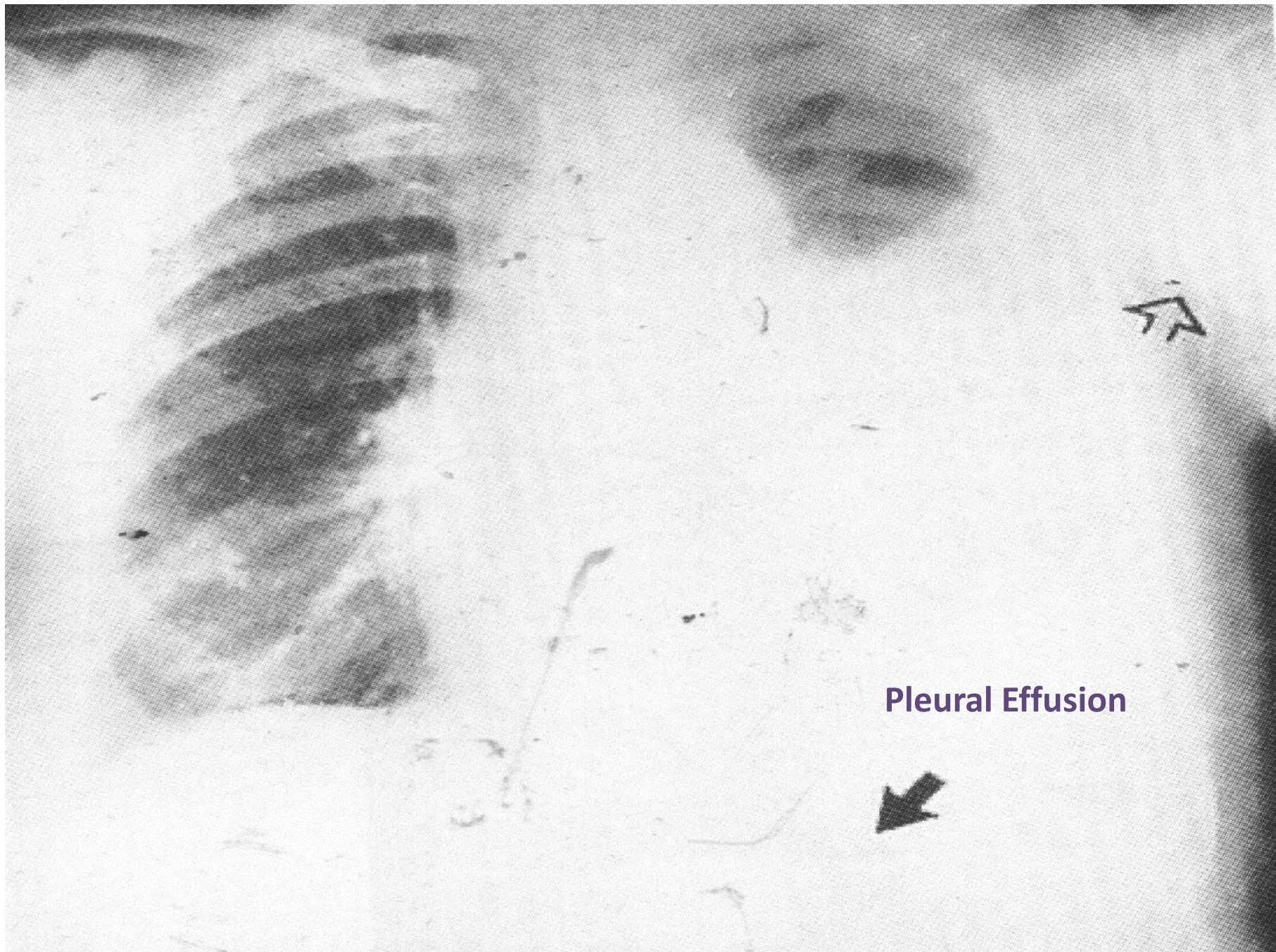
A





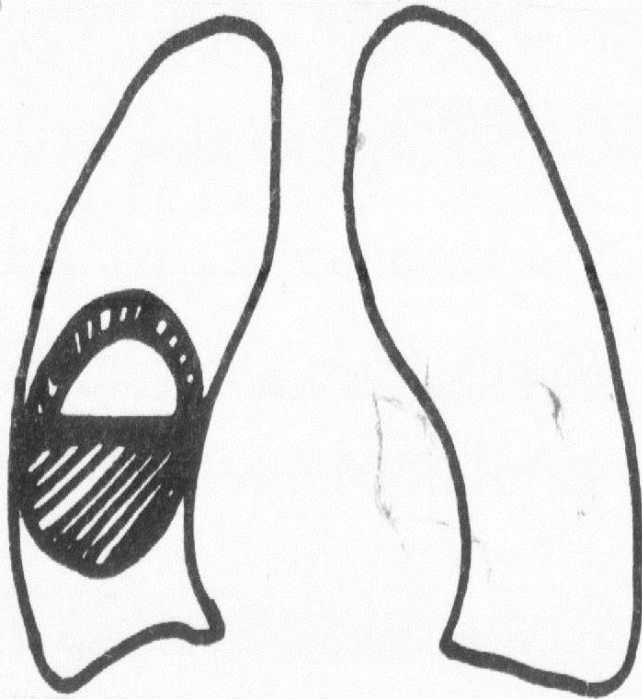
**Pleural Effusion**





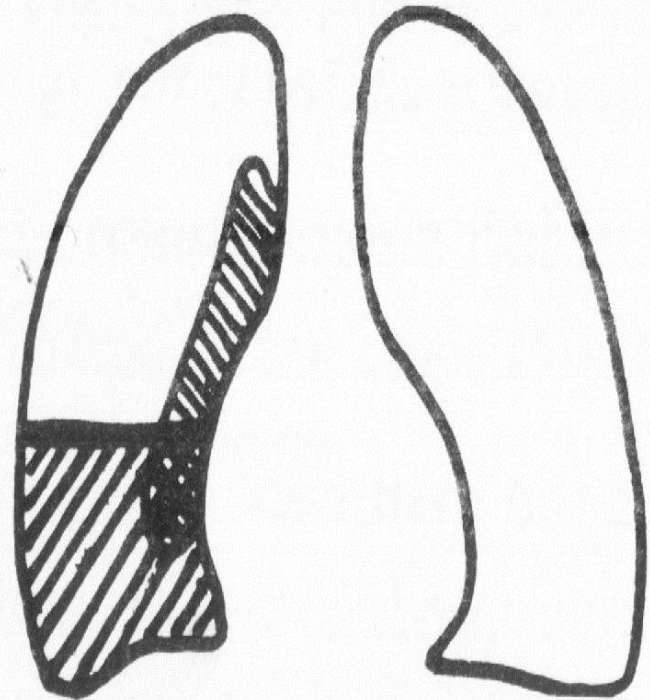


## Lung abscess



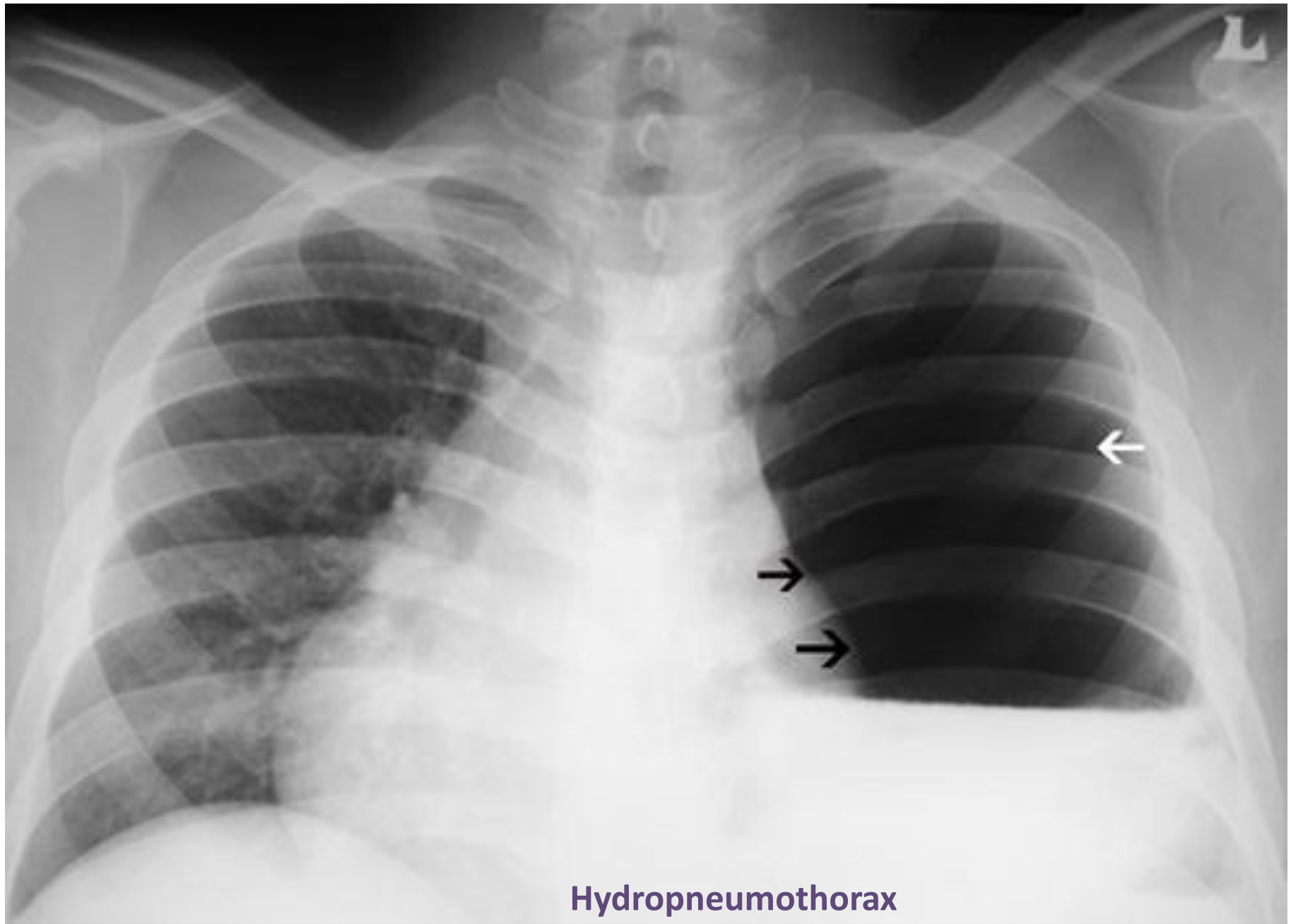
Air-fluid level is limited  
to the abscess cavity  
No mediastinal shift

## Hydropneumothorax



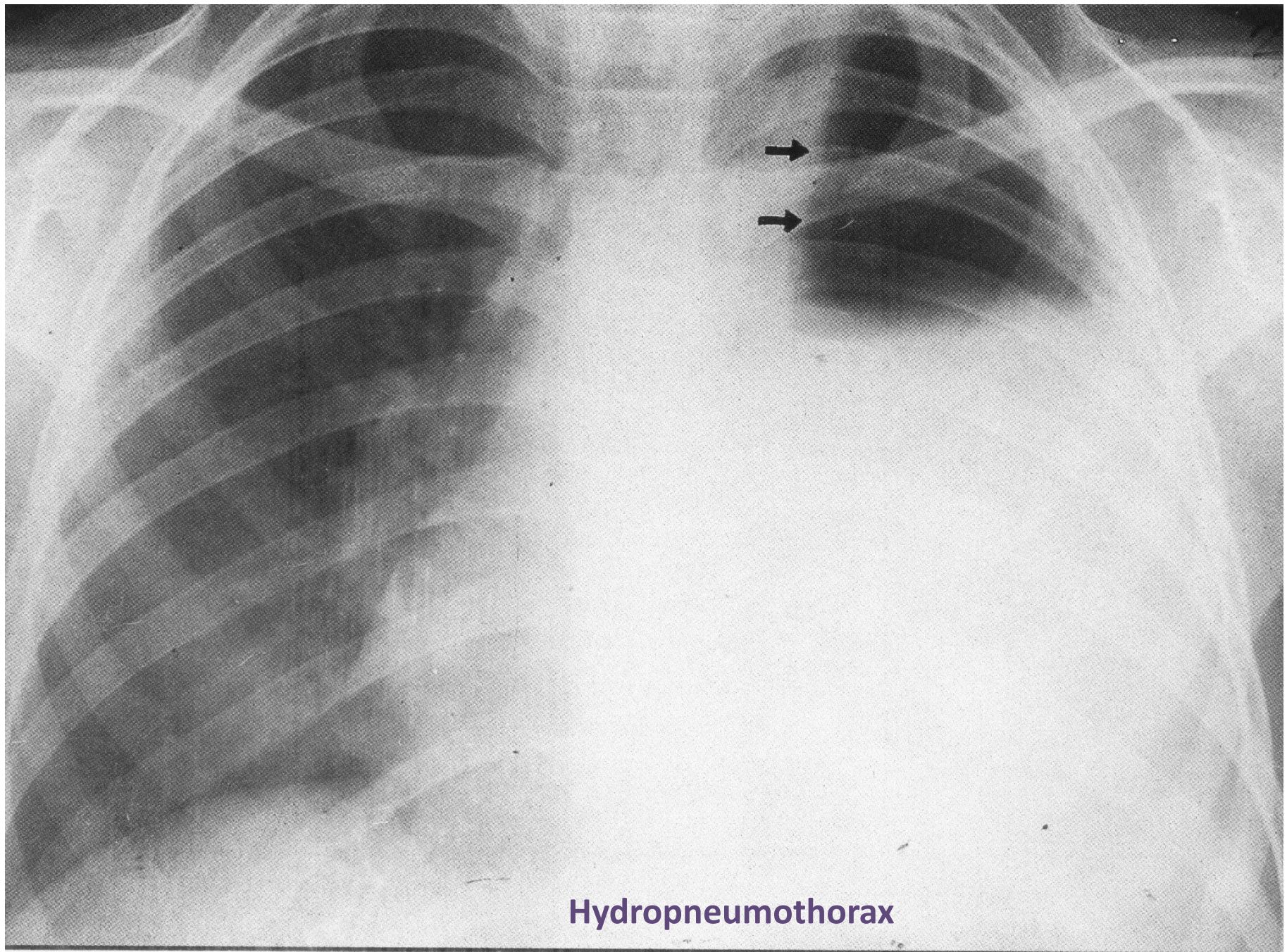
Air-fluid level is involving the whole  
hemithorax with lung compression  
Mediastinal shift to the other side





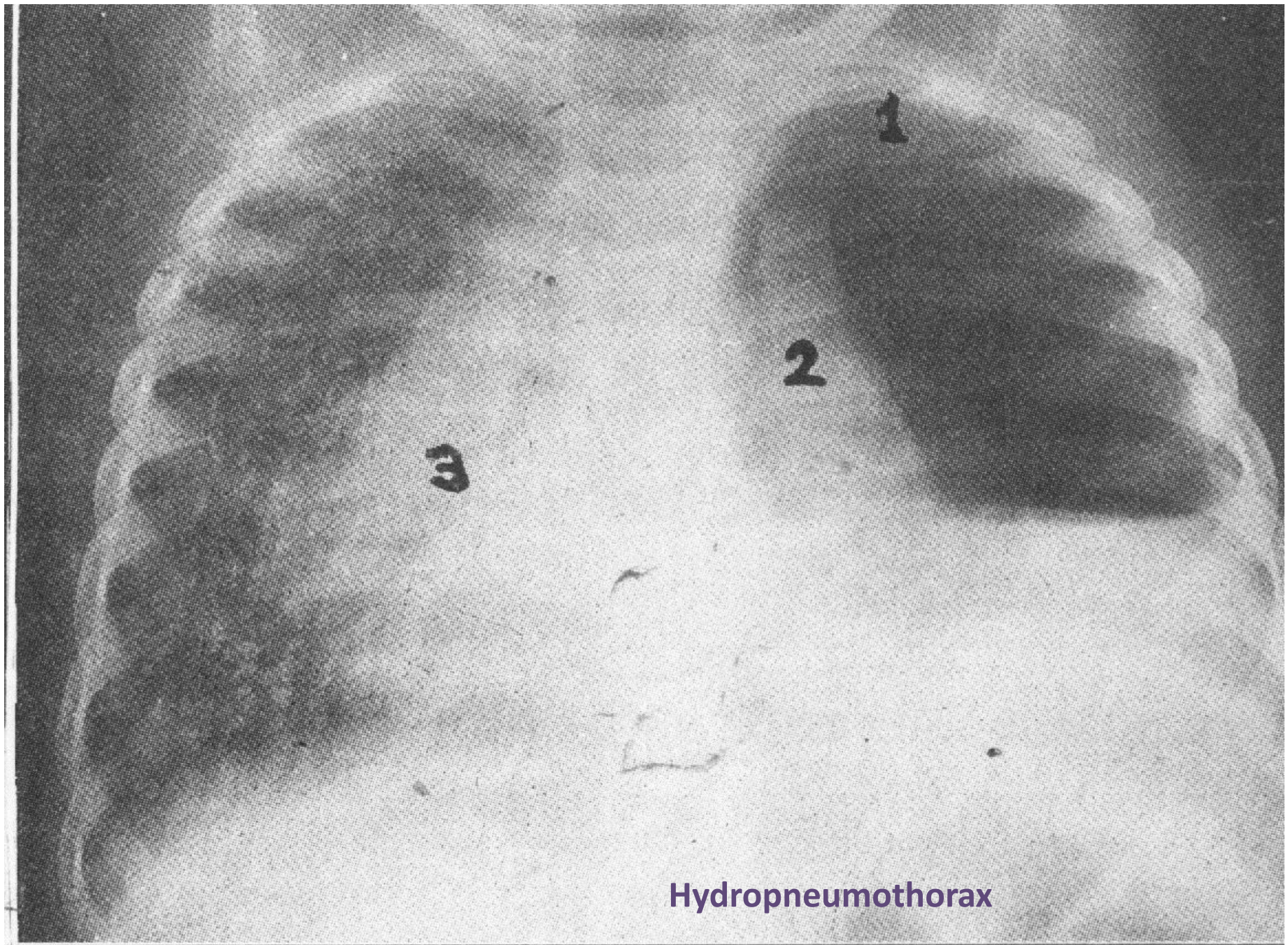
Hydropneumothorax





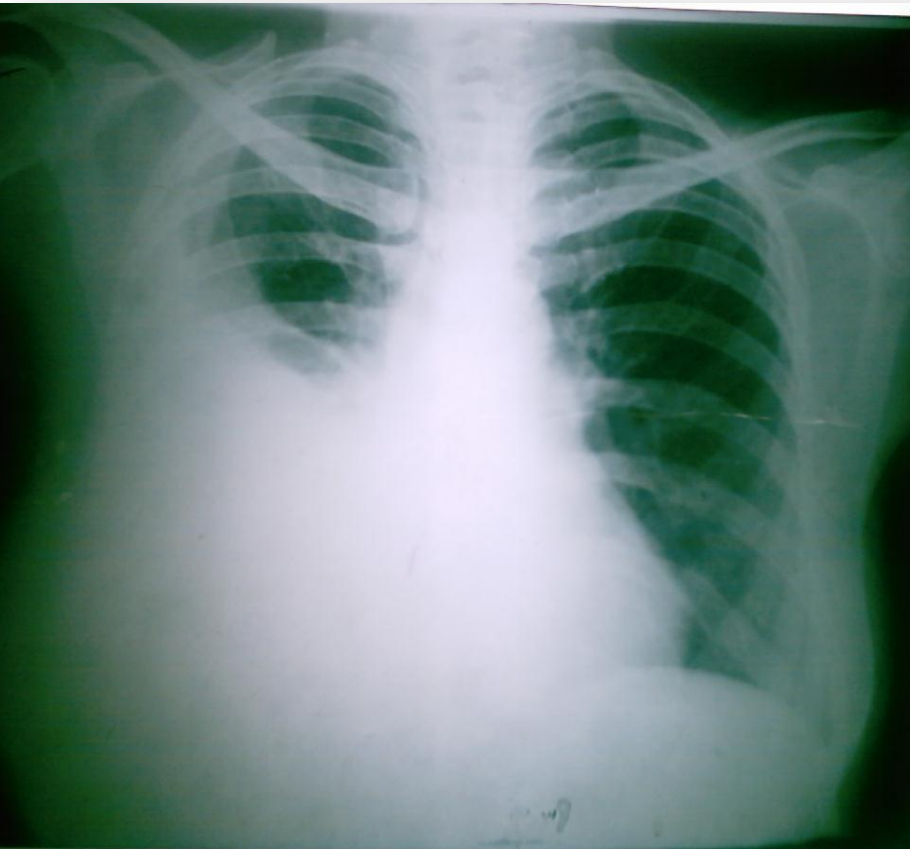
**Hydropneumothorax**





Hydropneumothorax

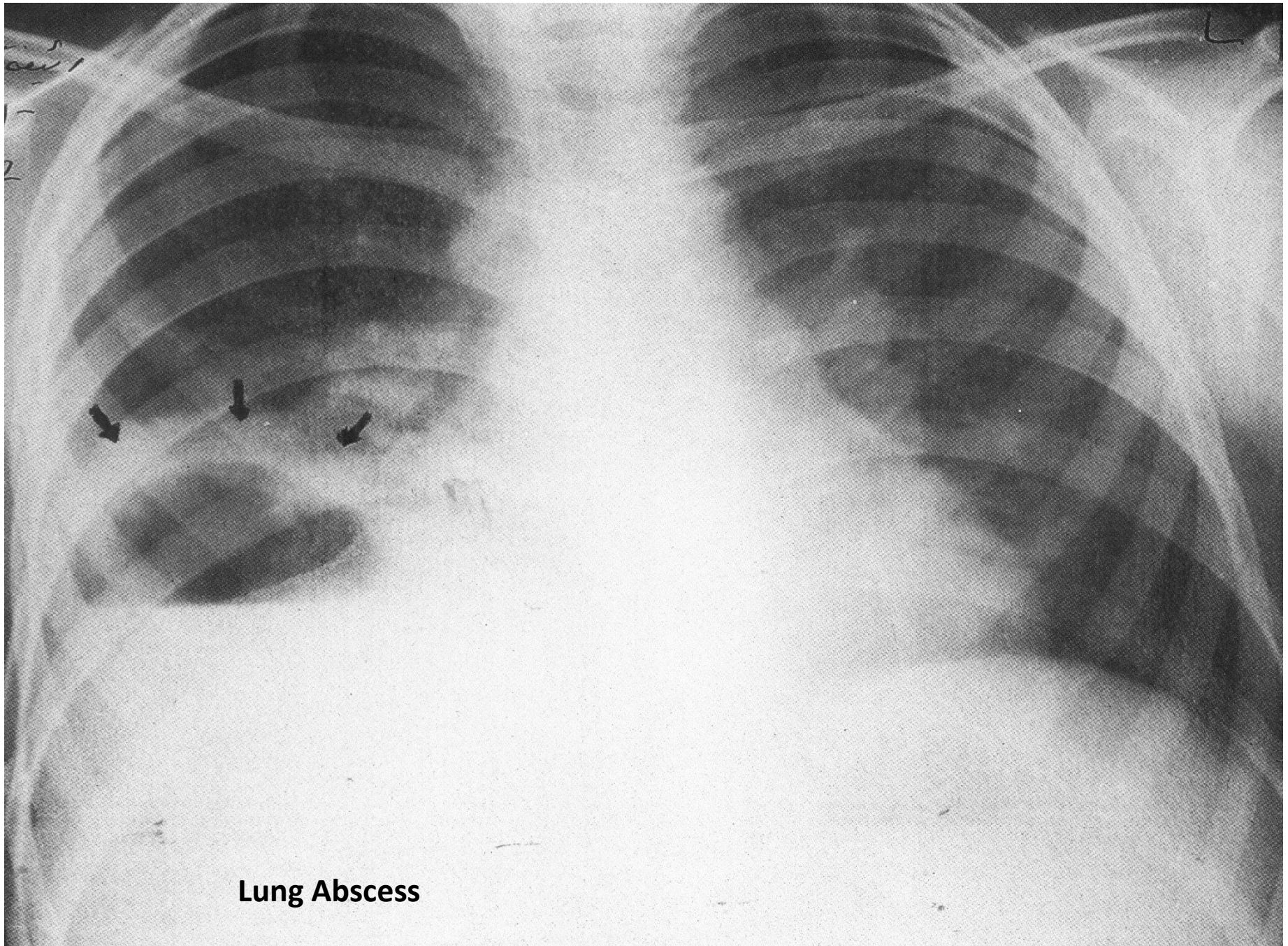




**Pleural Effusion**

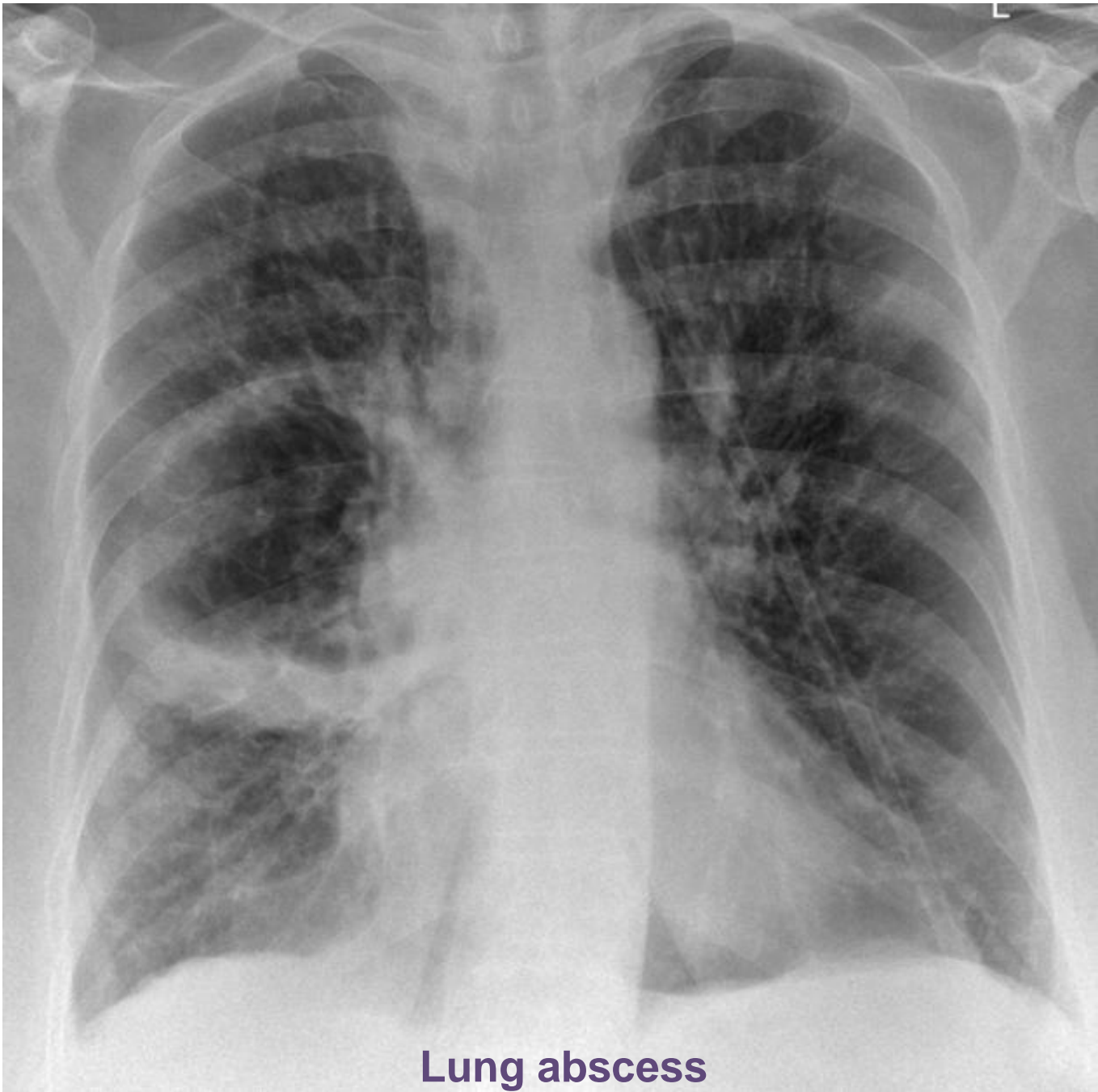


**Hydropneumothorax**

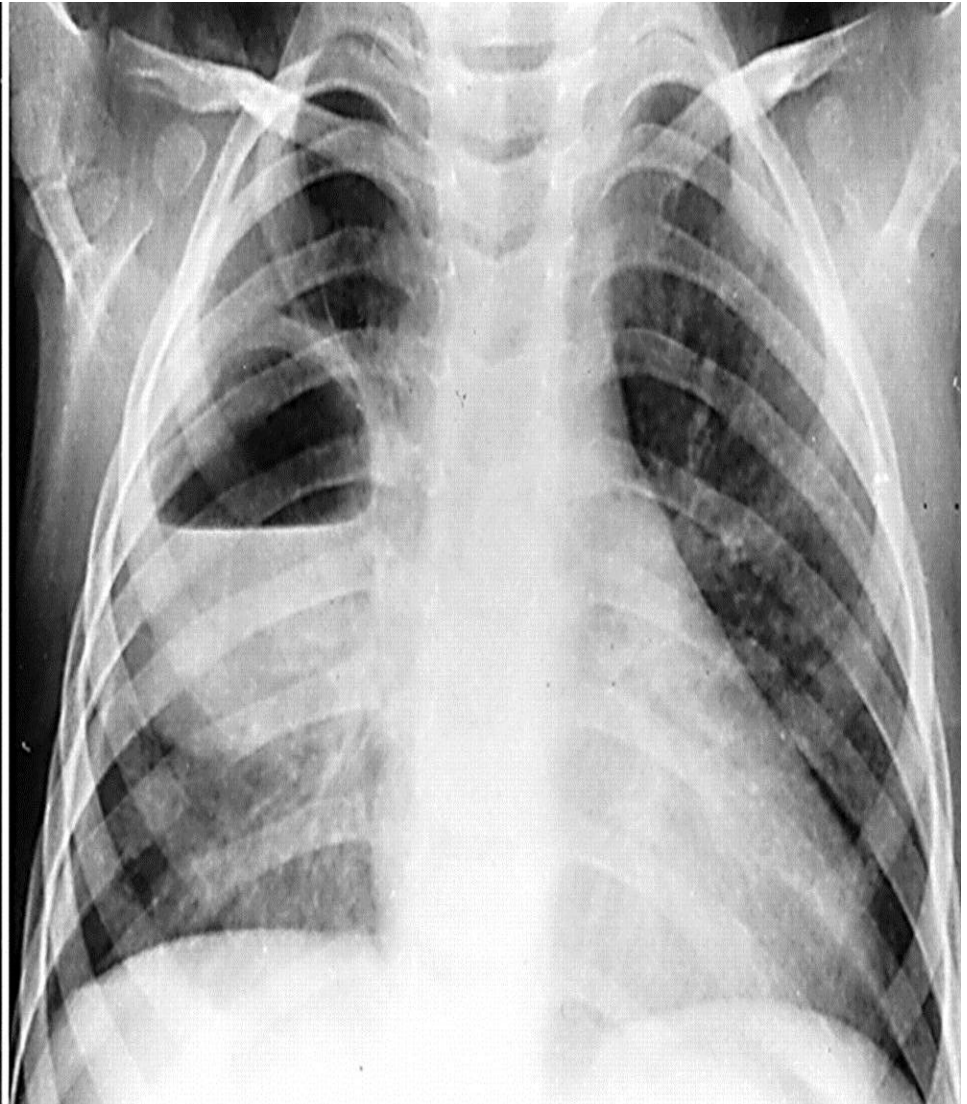
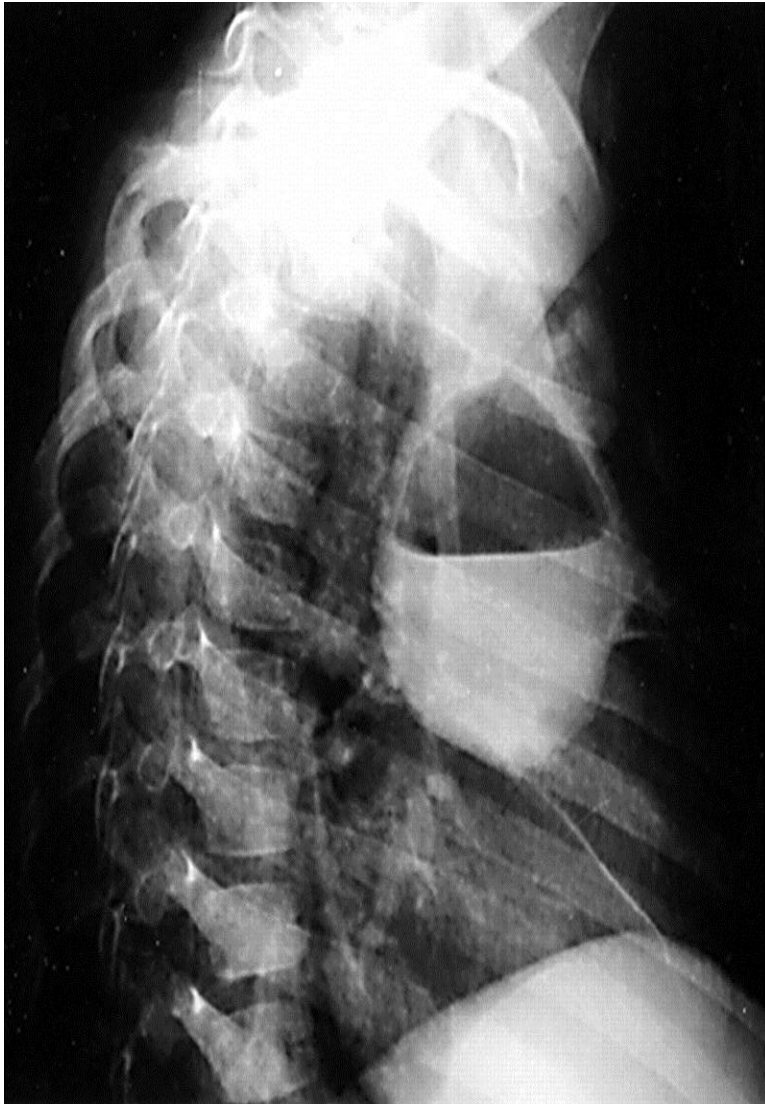


**Lung Abscess**



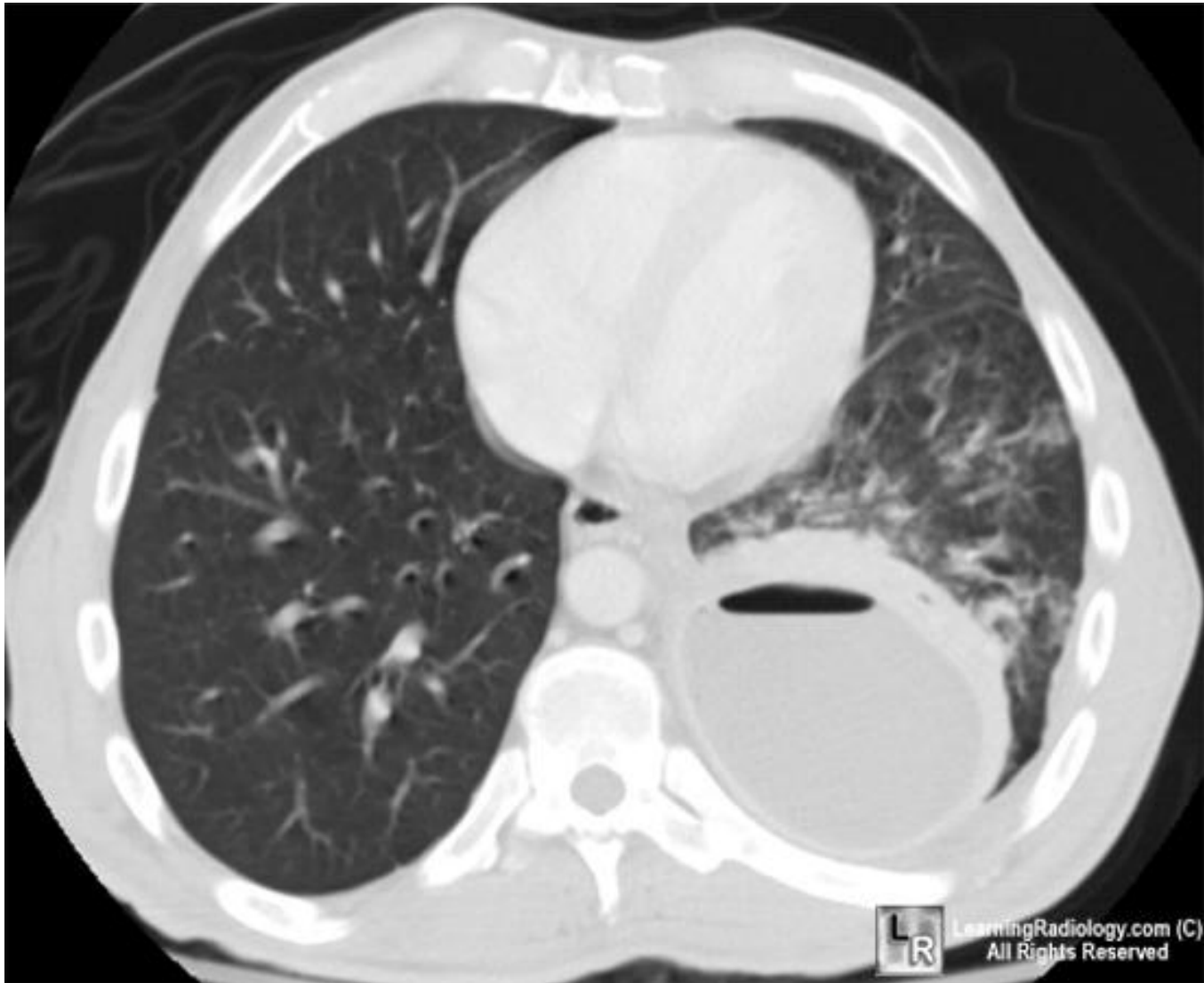


**Lung abscess**



**Lung abscess**



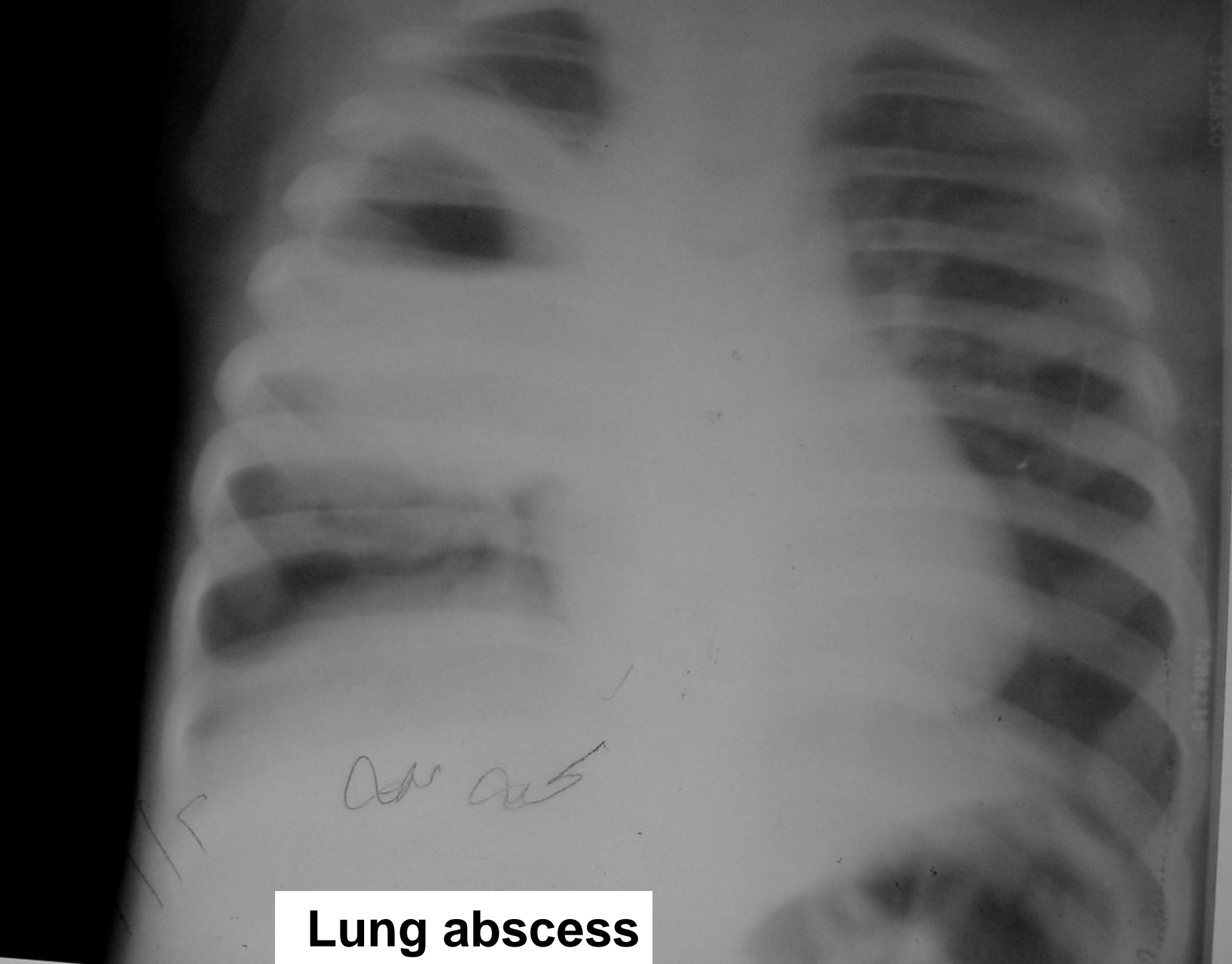


**Lung abscess**



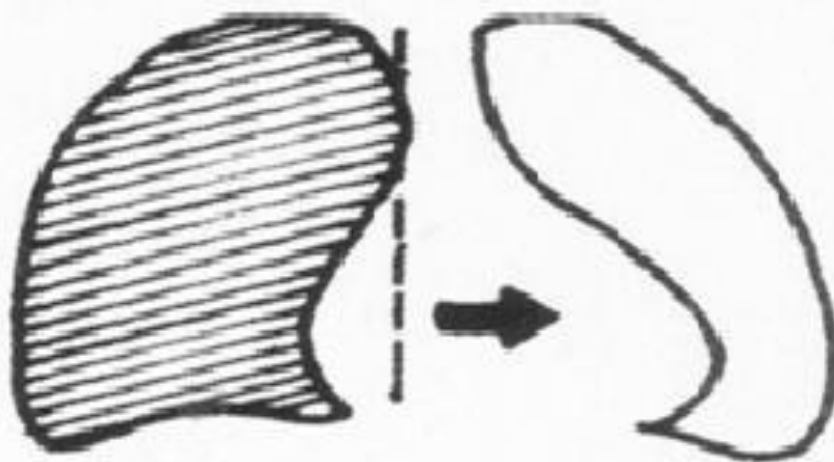
**Lung abscess**



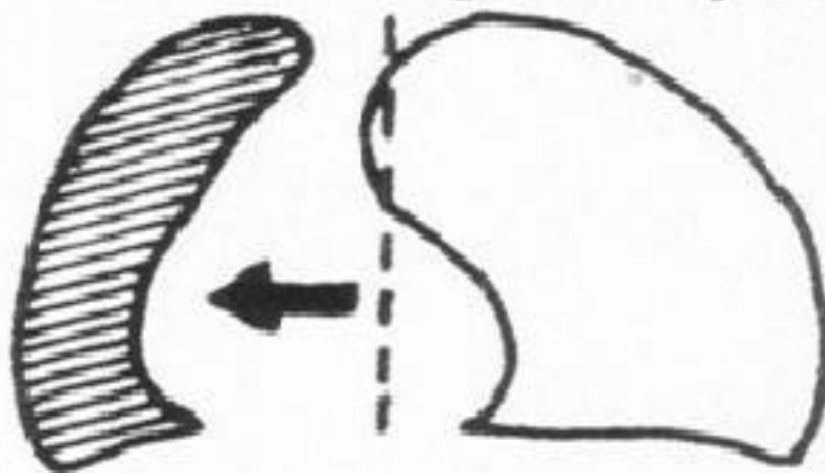


**Lung abscess**

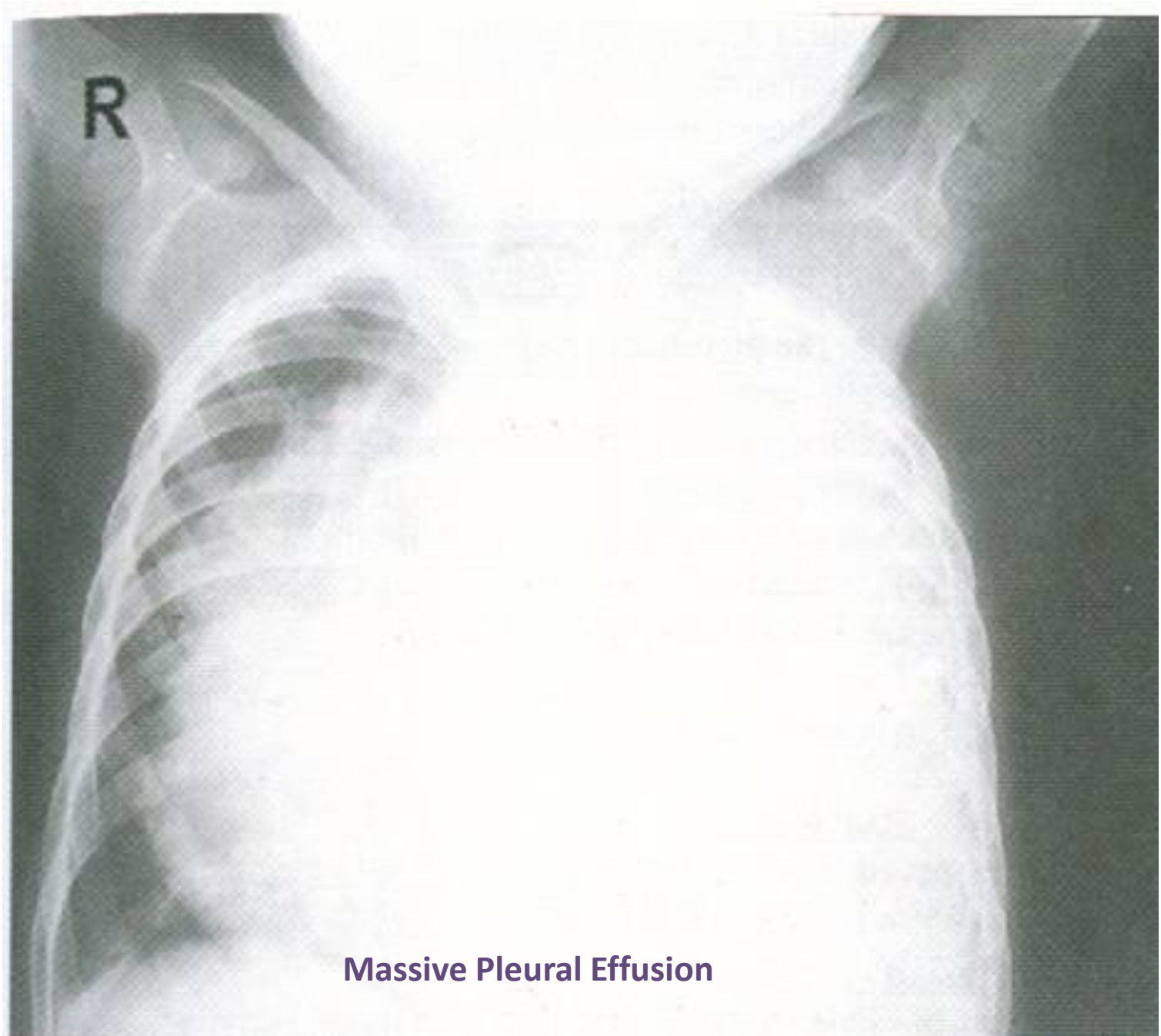
## **Massive pleural effusion**



## **Massive lung collapse**







**Massive Pleural Effusion**

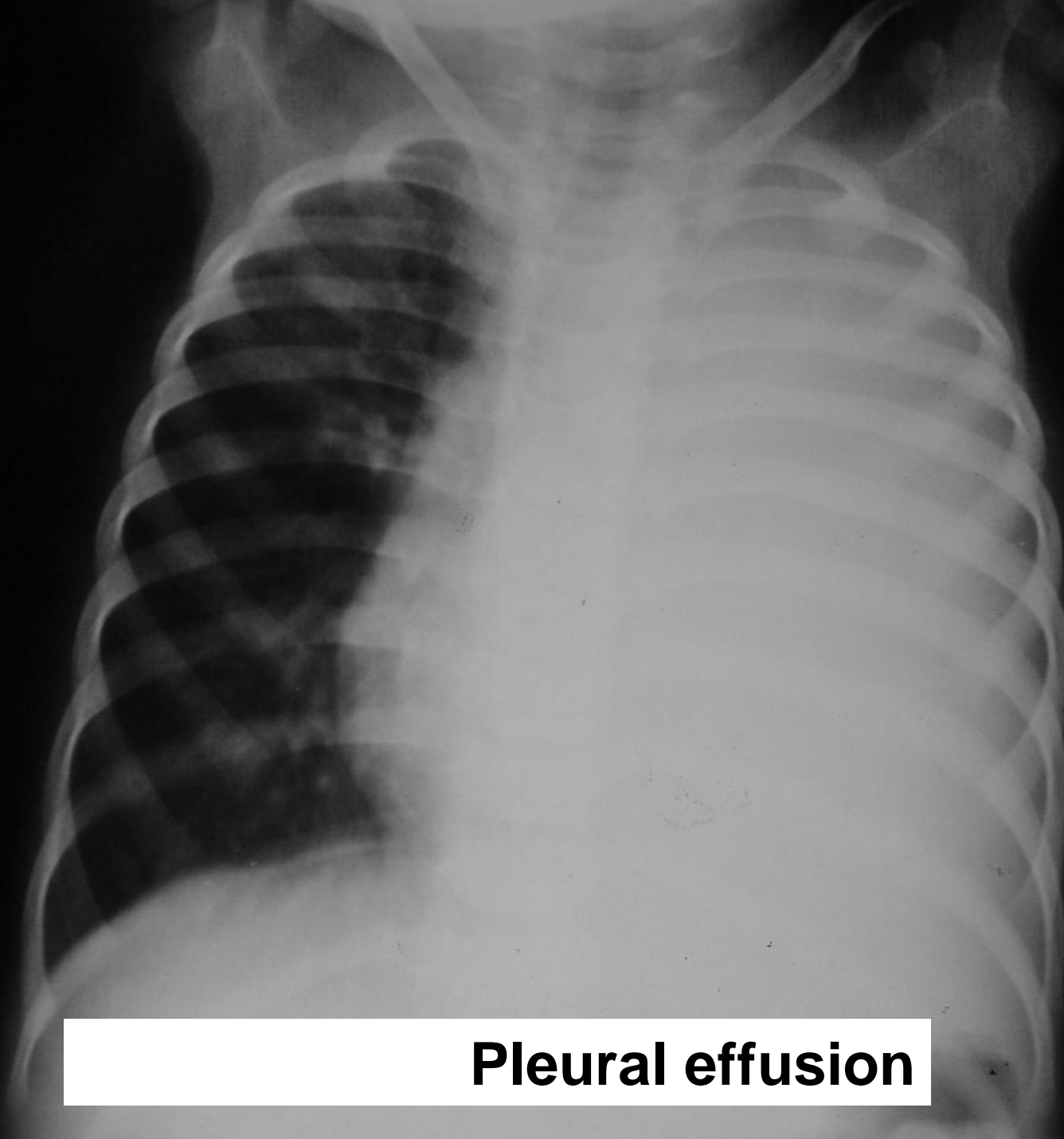




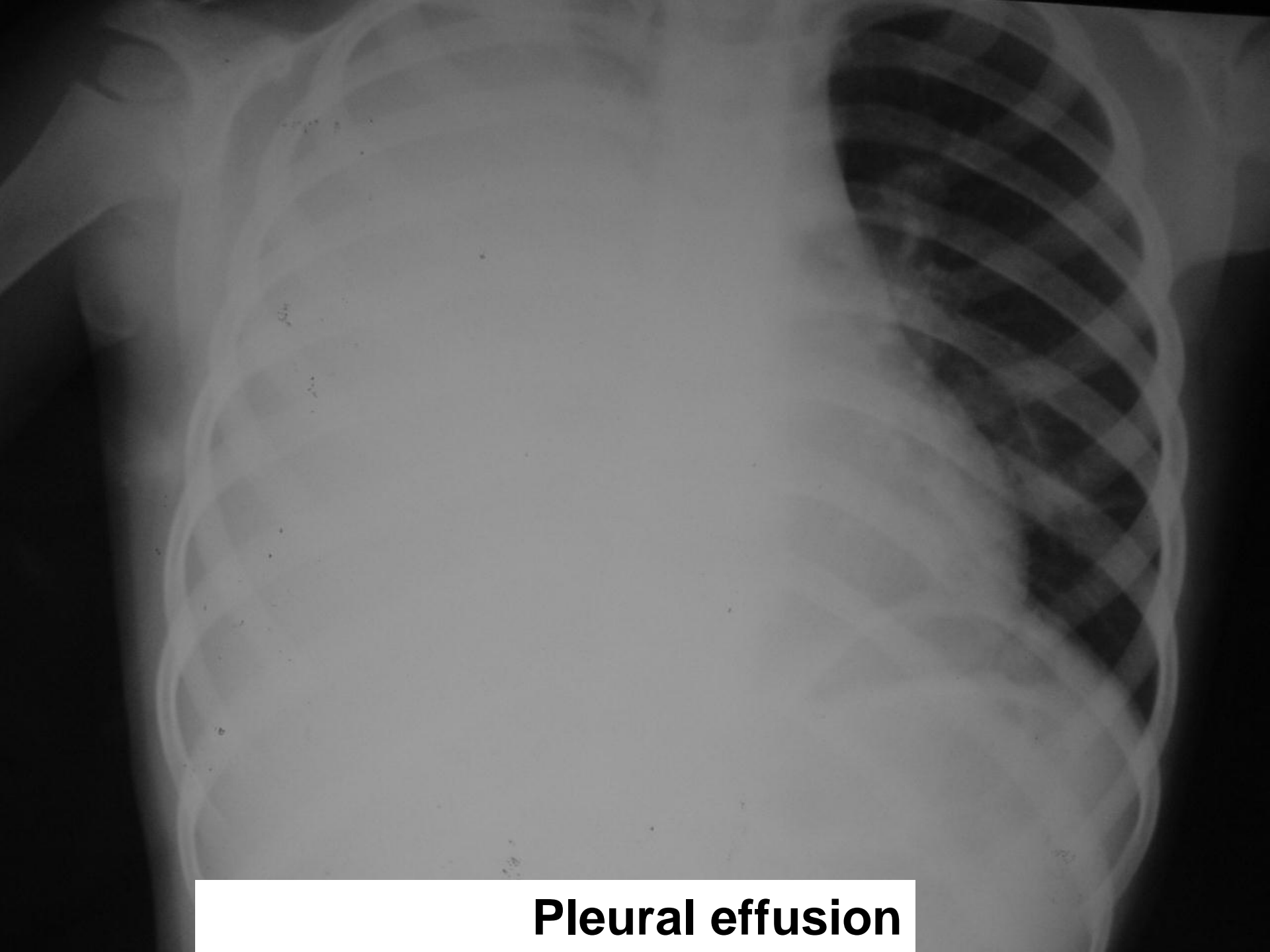
This is an anteroposterior (AP) chest radiograph. The image shows a significant bilateral pleural effusion, which is a collection of fluid in the pleural space. The effusion is massive, as it completely obscures the lung fields and the diaphragms. The only visible structures are the bony ribs and the mediastinal structures, which appear shifted towards the left. The text 'Massive Pleural Effusion' is overlaid at the bottom center of the image.

**Massive Pleural Effusion**



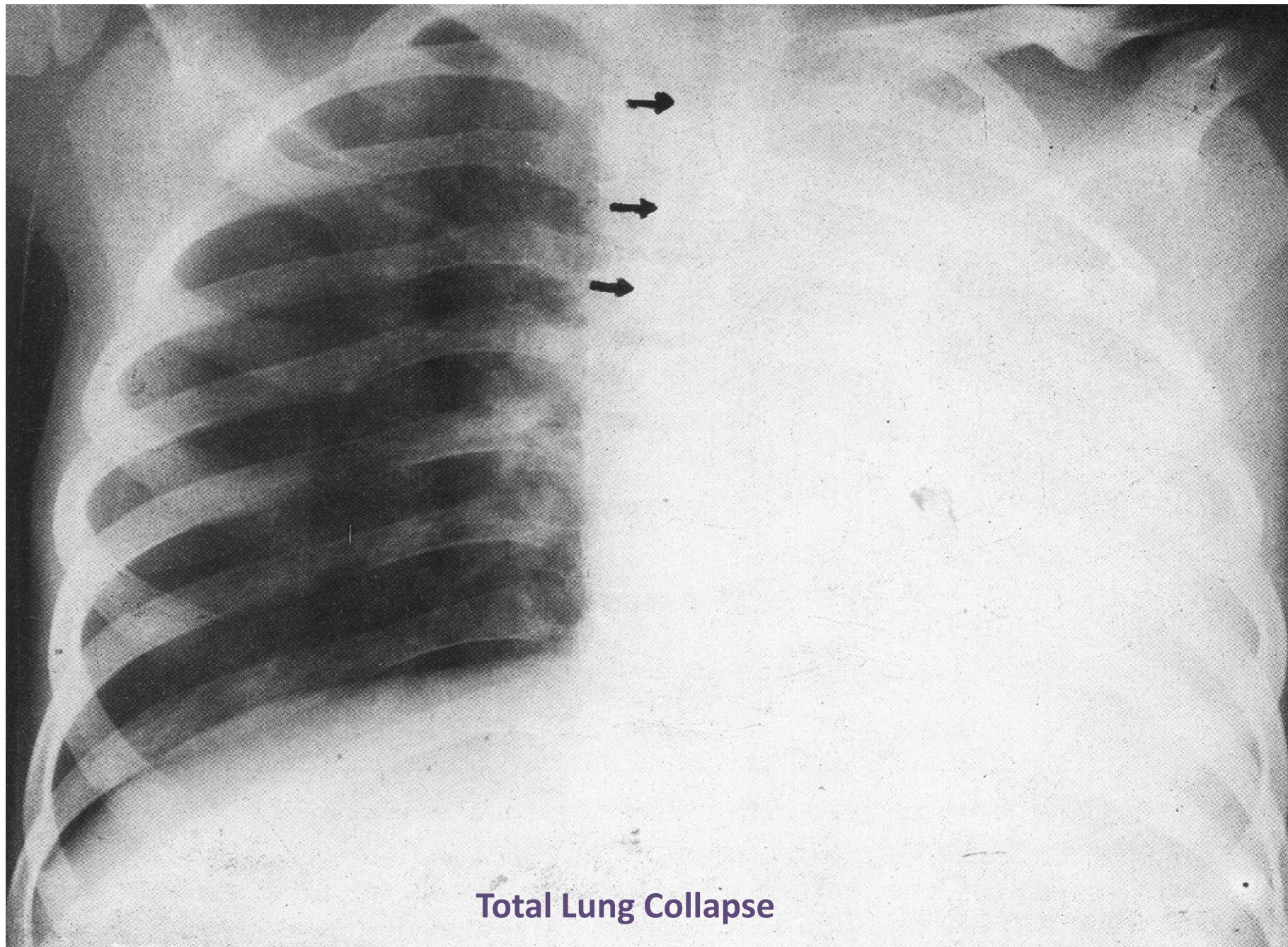


**Pleural effusion**



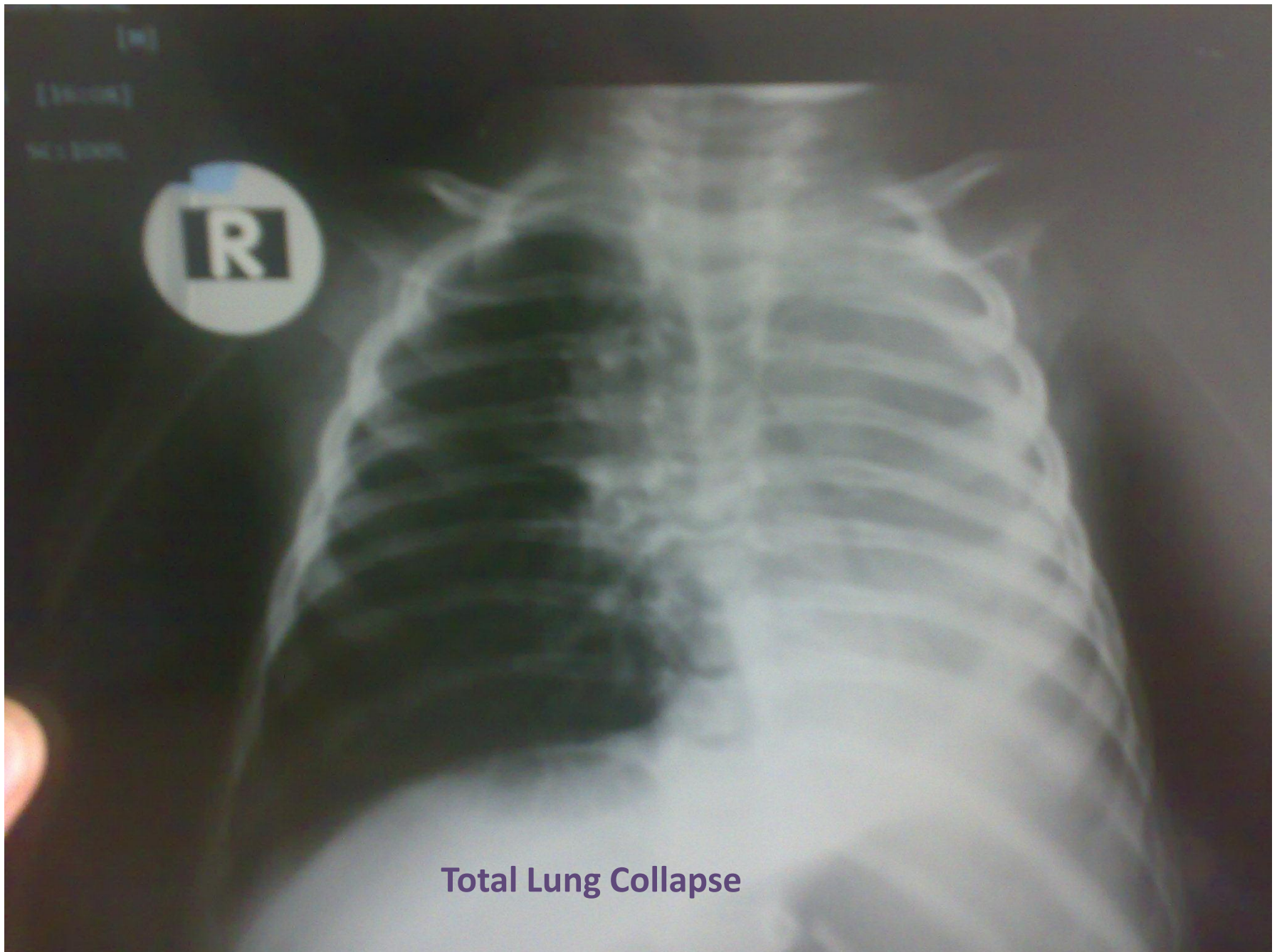
**Pleural effusion**





**Total Lung Collapse**





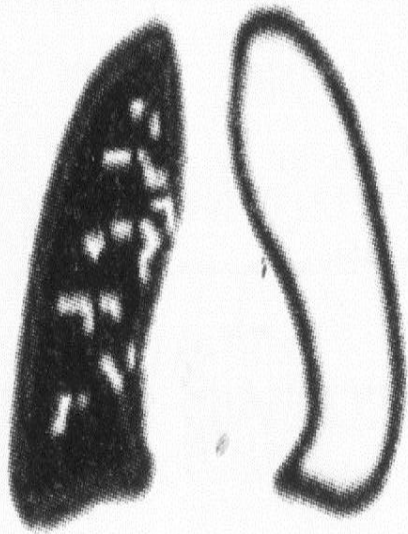
Total Lung Collapse





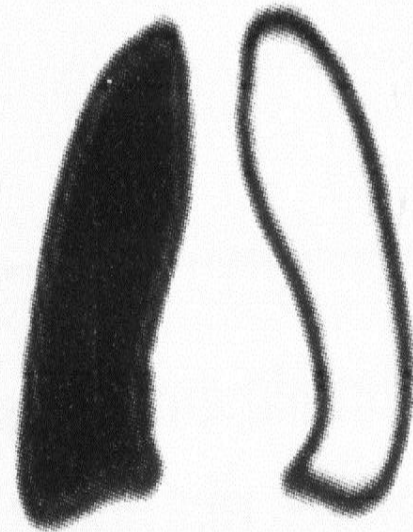
**Total Lung Collapse**

## Obstructive emphysema



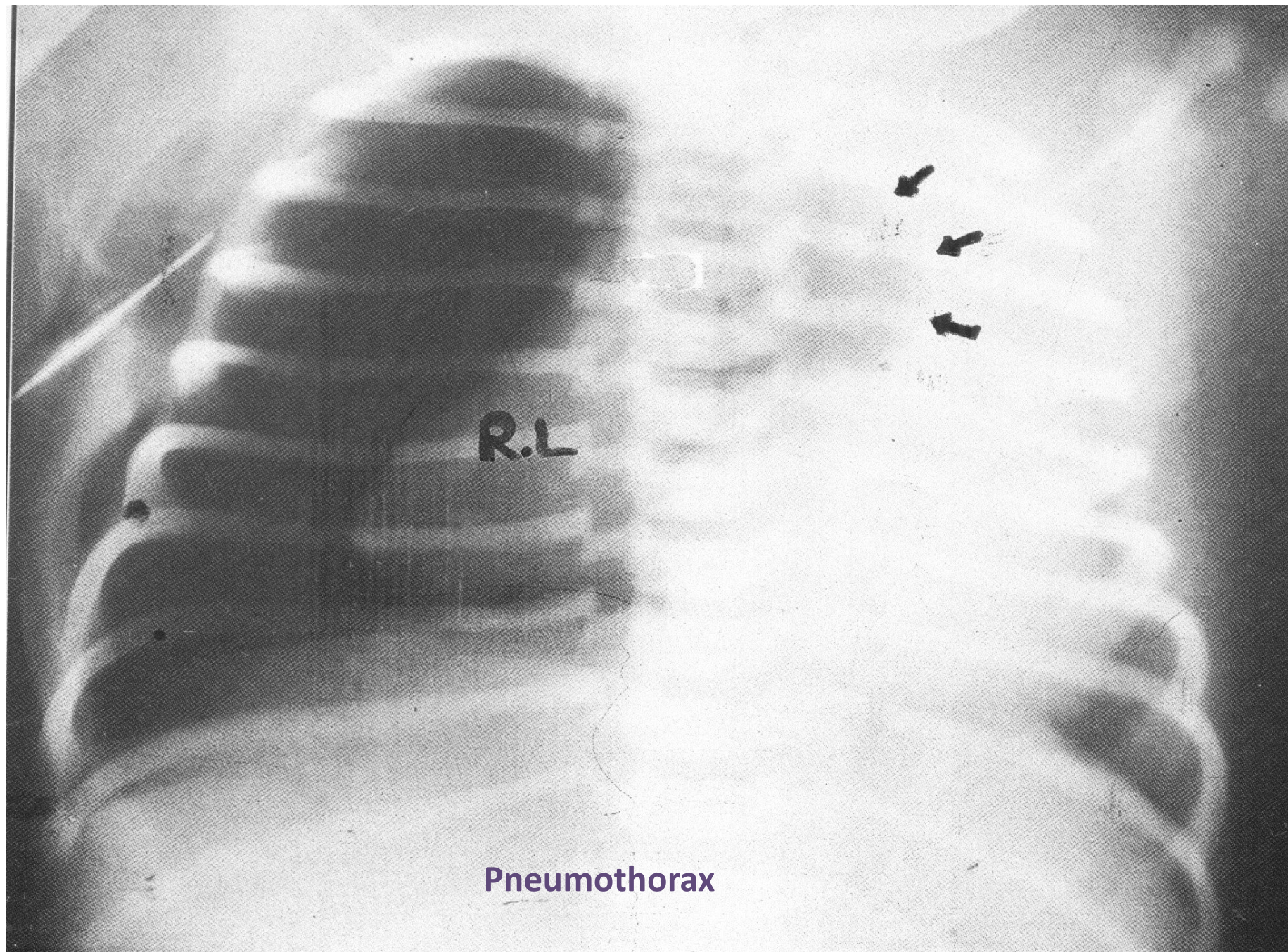
(Preserved lung markings)

## Pneumothorax



(Absent lung markings)

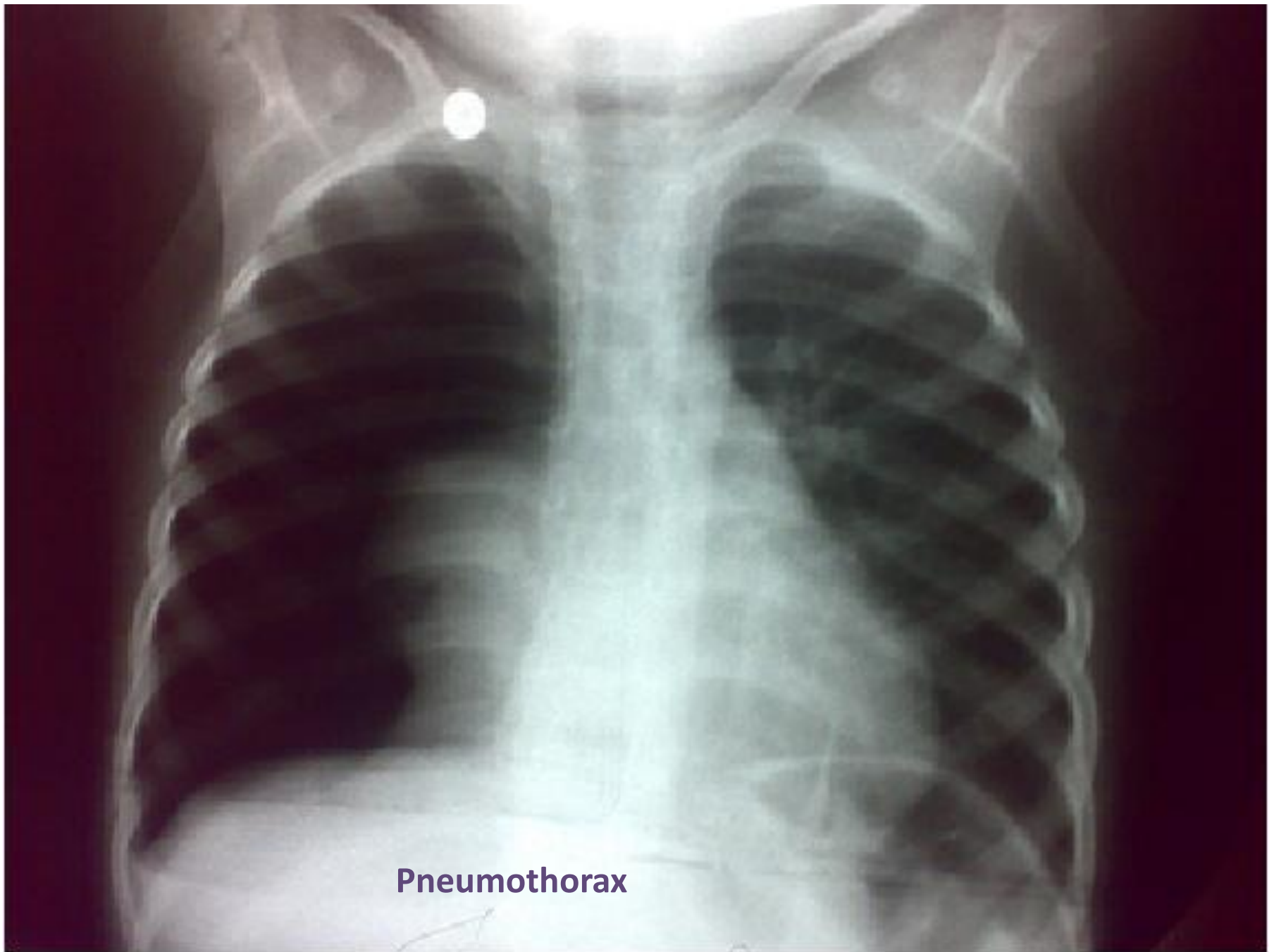




R.L

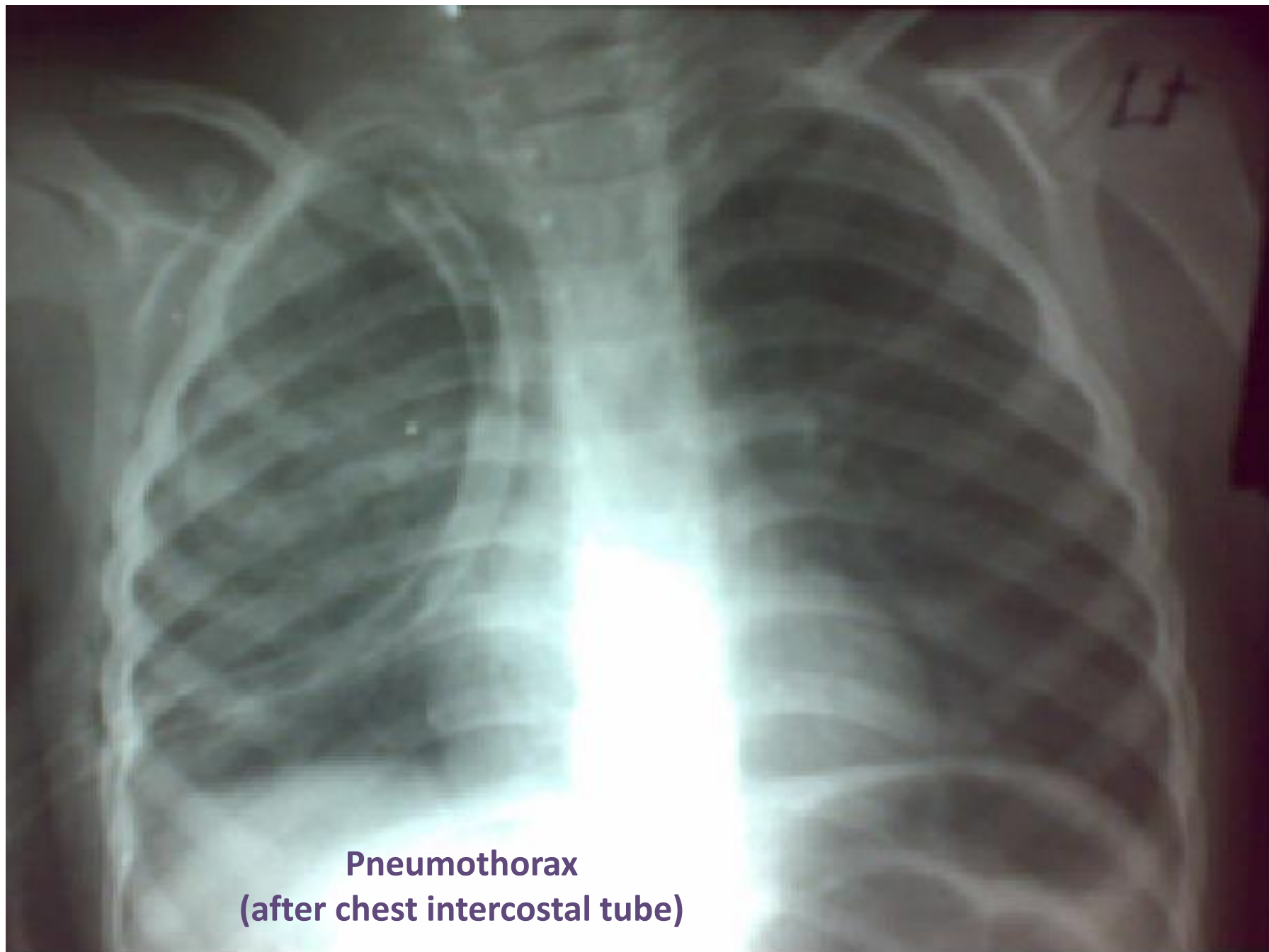
Pneumothorax





**Pneumothorax**





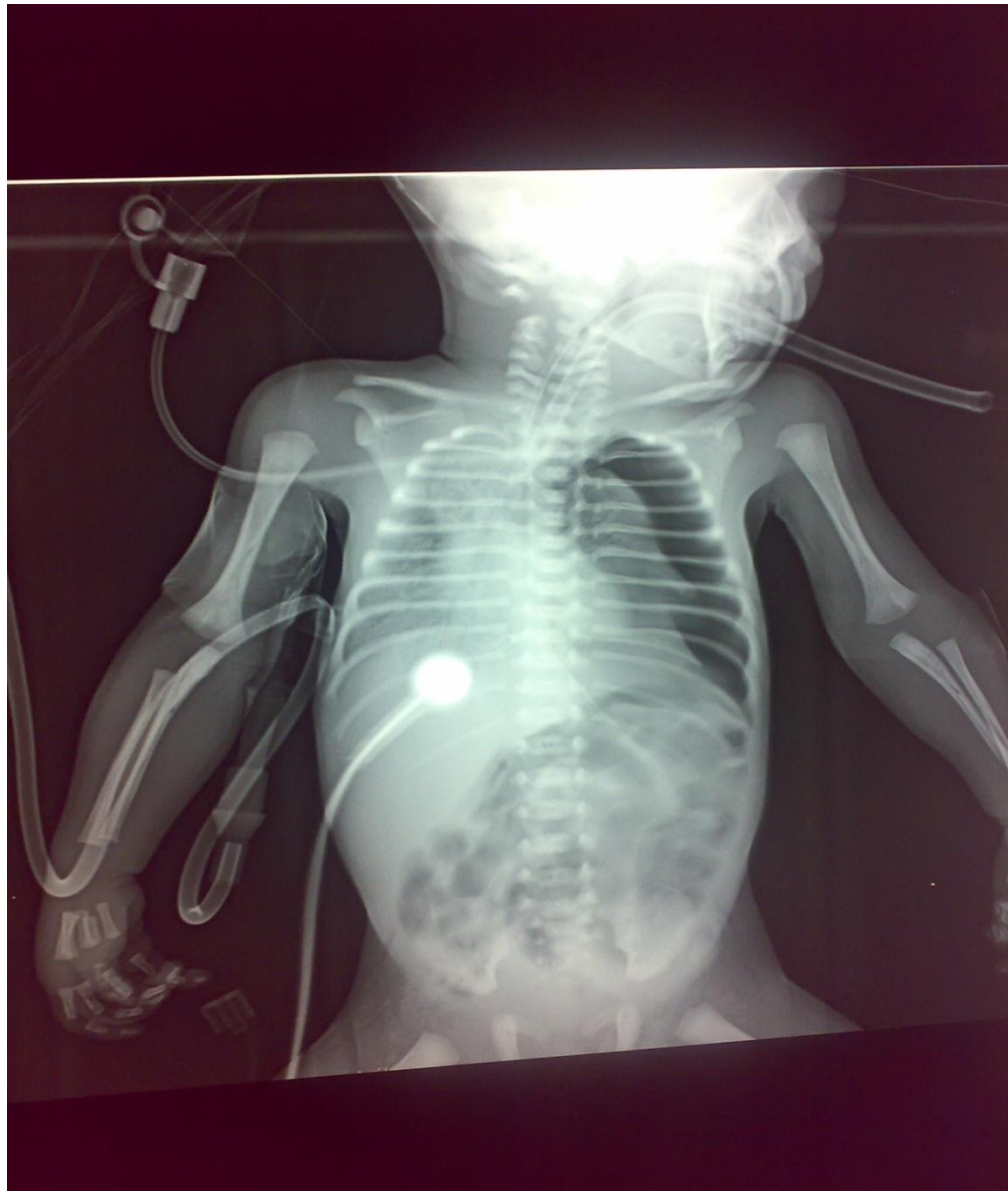
**Pneumothorax**  
**(after chest intercostal tube)**



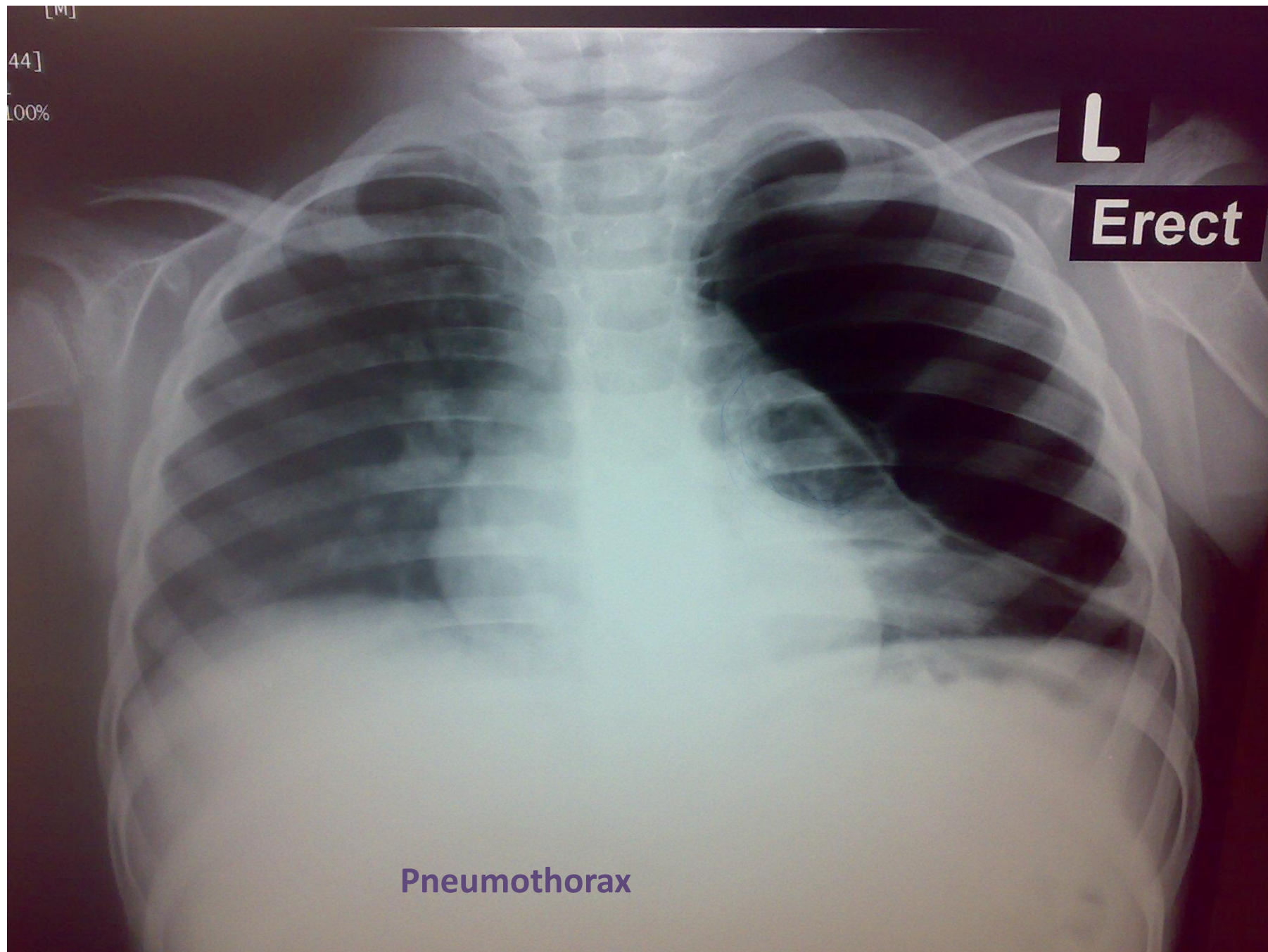
This is an anteroposterior (AP) chest radiograph. The image shows the bony structures of the thorax, including the ribs, spine, and clavicles. The lung fields are visible, with a notable area of increased radiolucency (darker area) on the right side, indicating the presence of a pneumothorax. The text 'Pneumothorax' is overlaid on the image, pointing to this area.

Pneumothorax





**Pneumothorax**

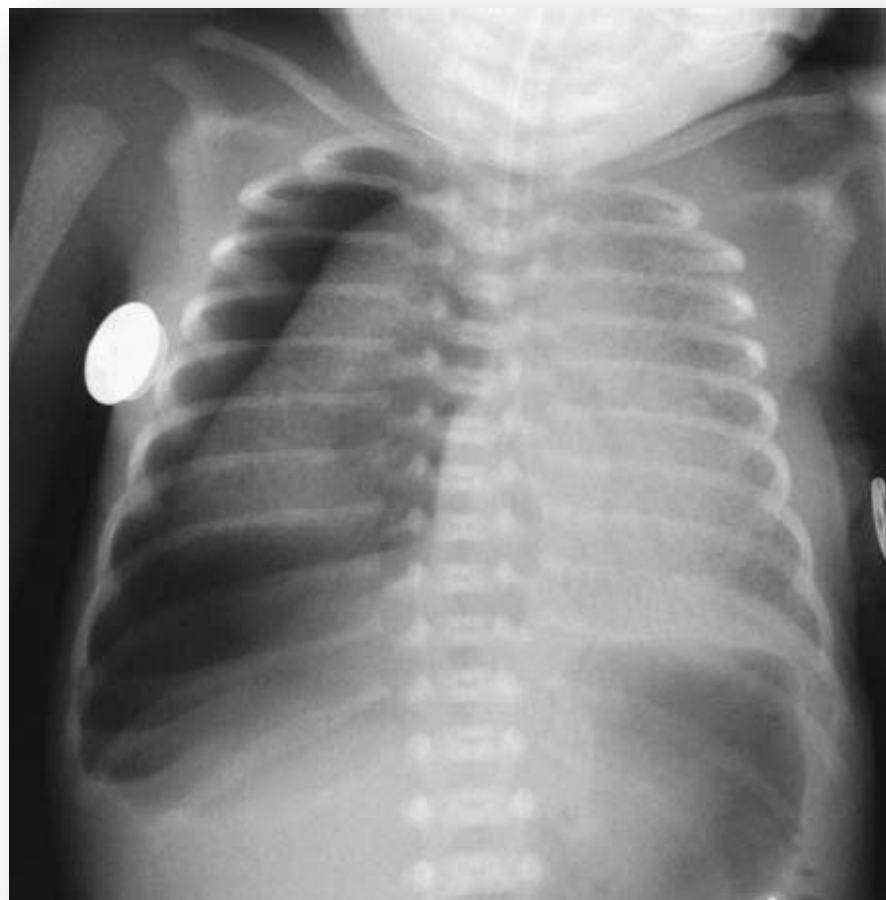
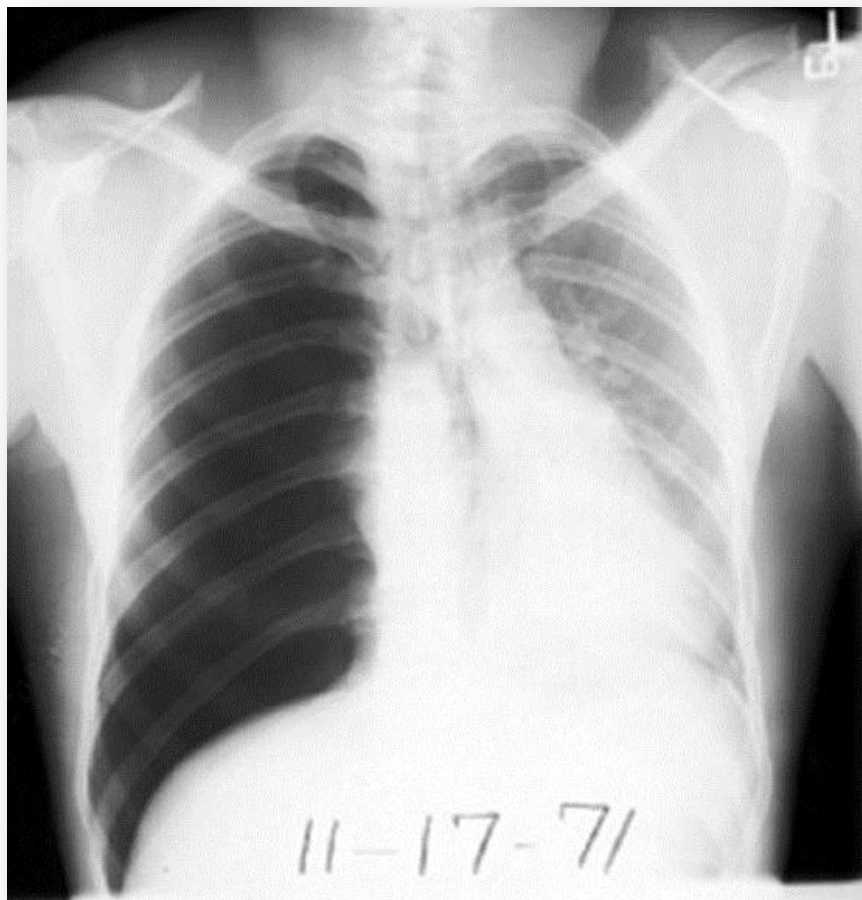


L

Erect

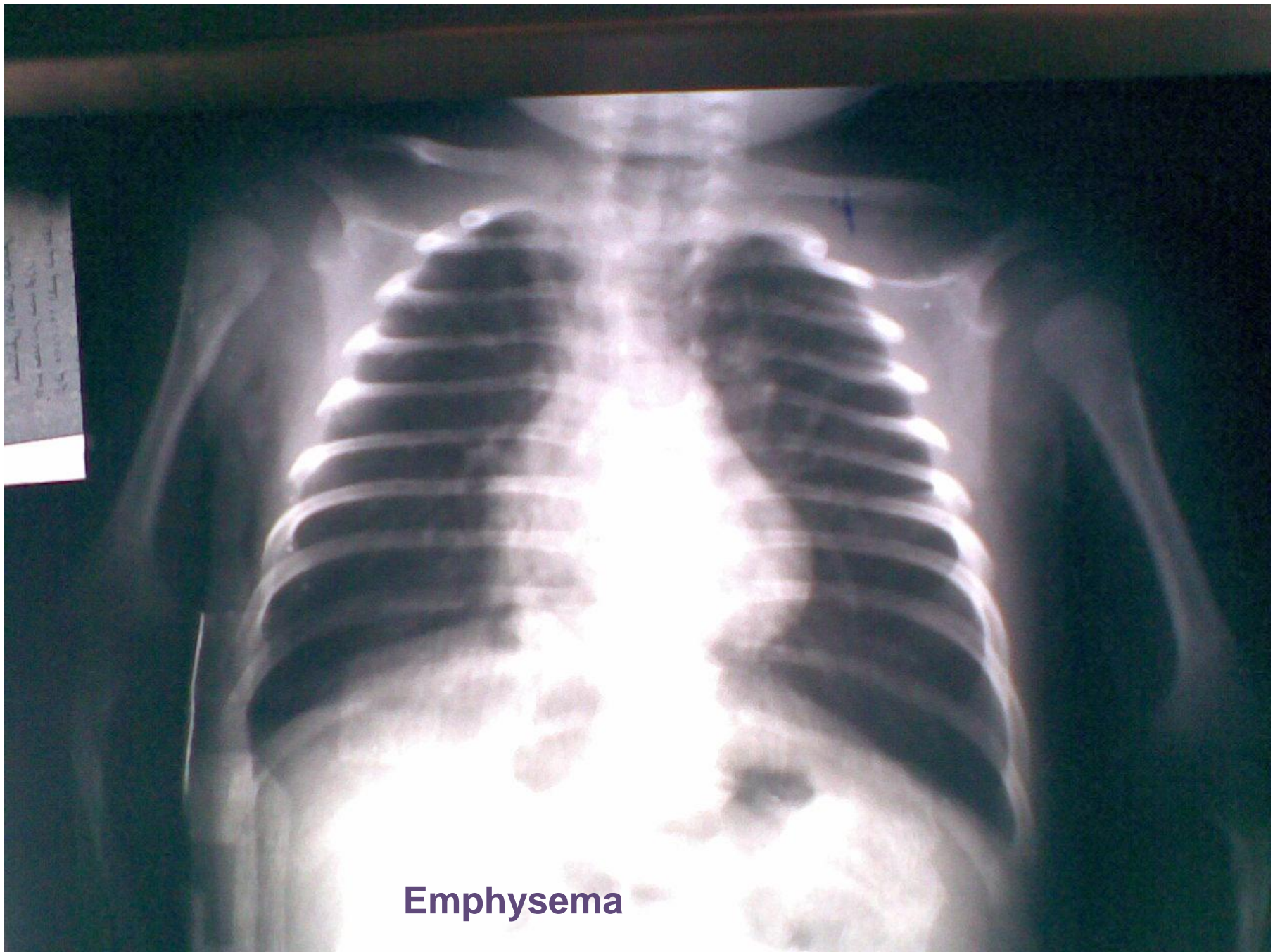
Pneumothorax



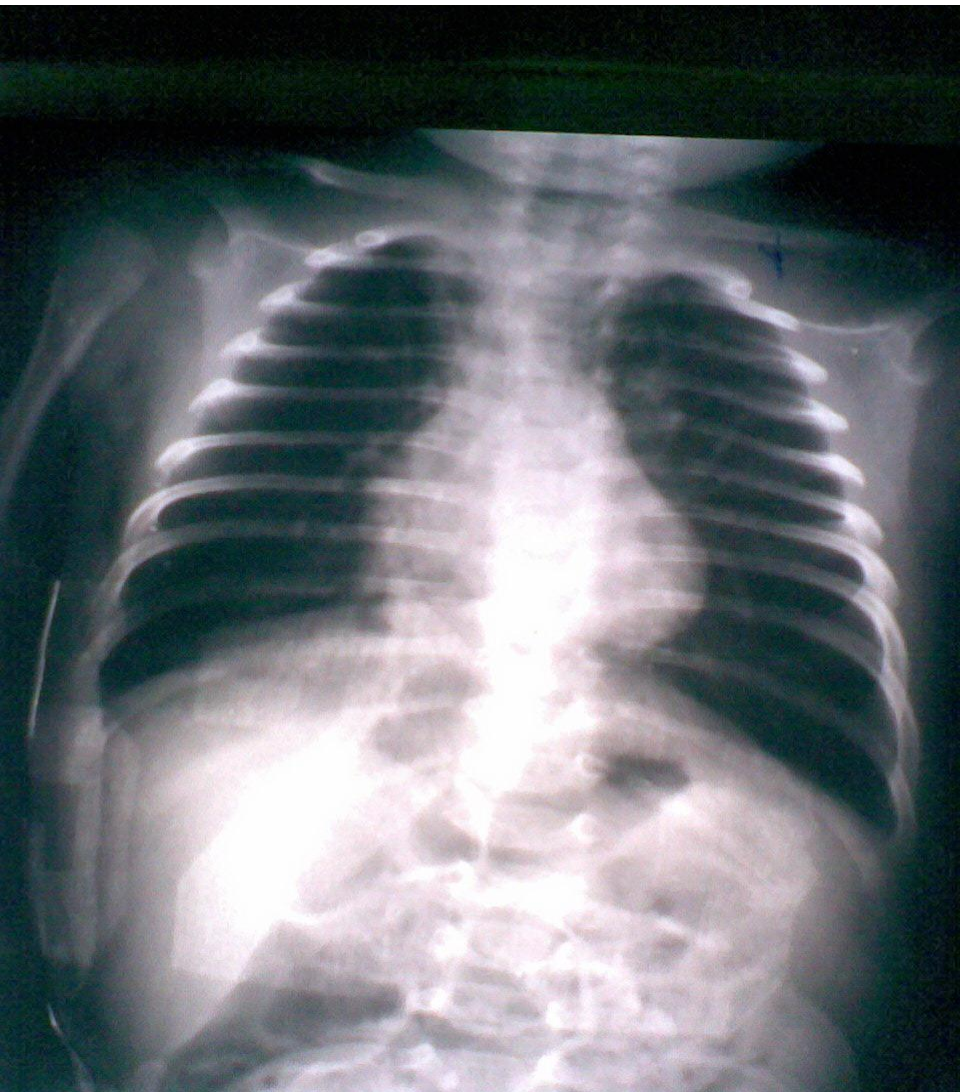








**Emphysema**



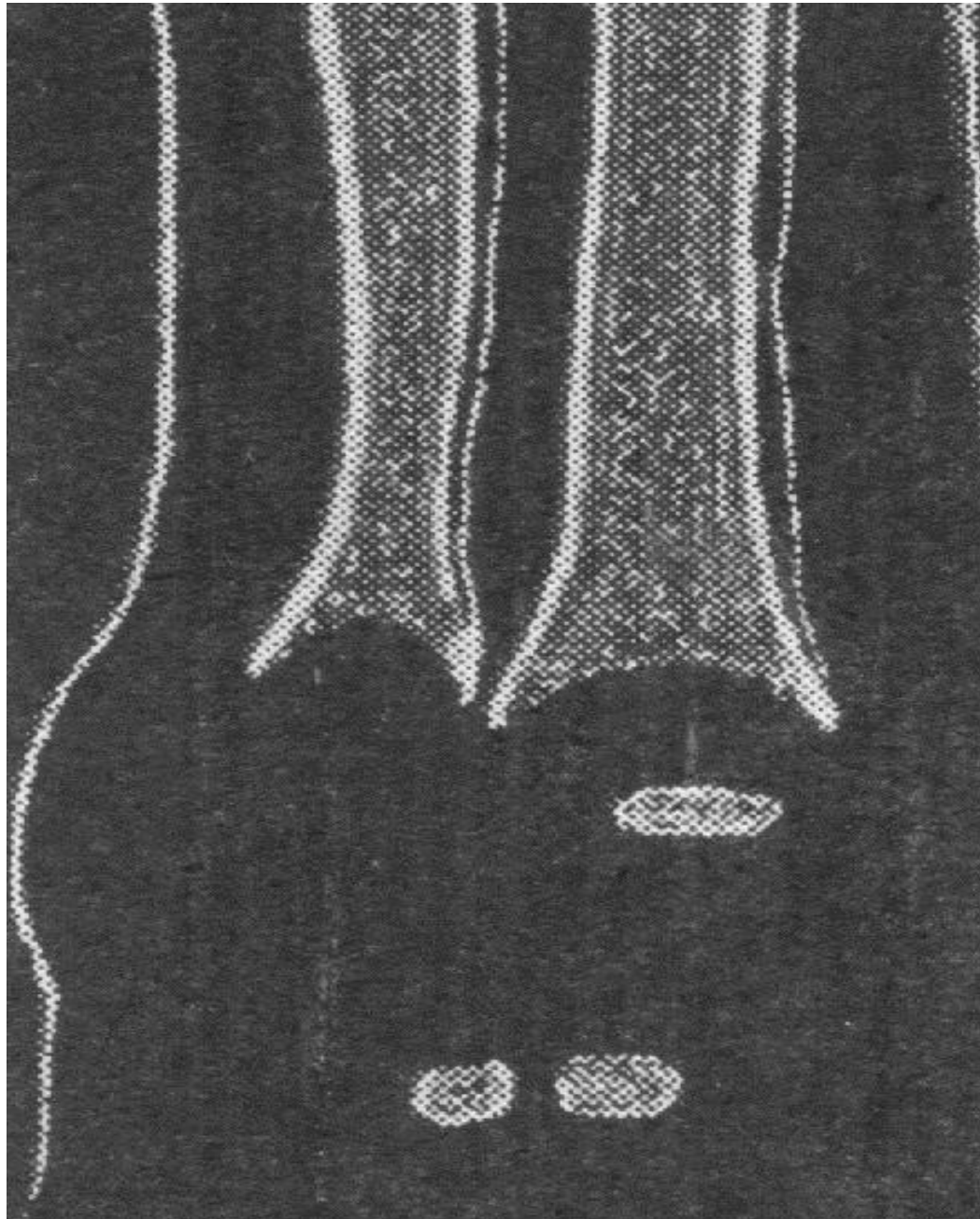
**Emphysema**



**Normal**

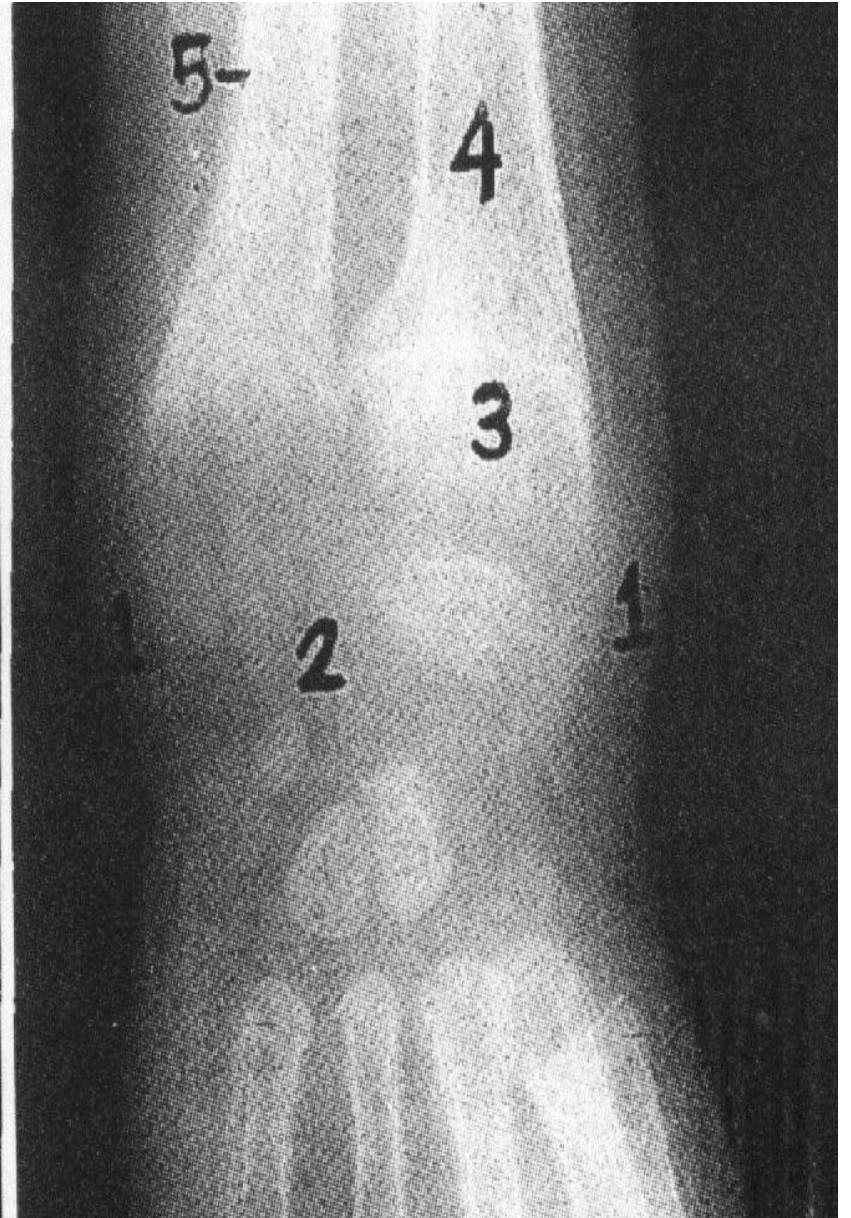


**Active Rickets**





**Normal**



**Active Rickets**





**Active Rickets**



**Active Rickets**



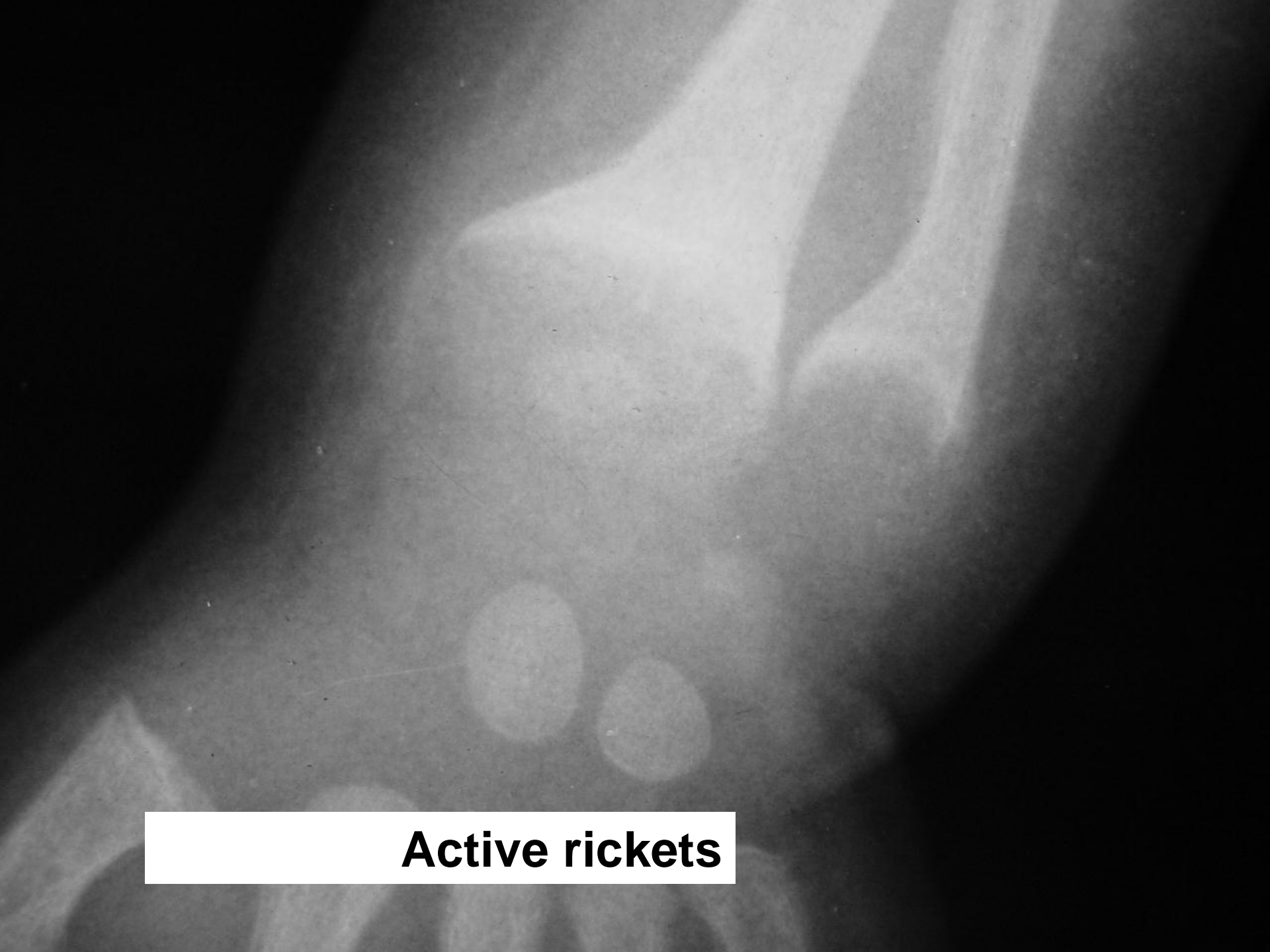


**Active Rickets**



**Active Rickets**





**Active rickets**

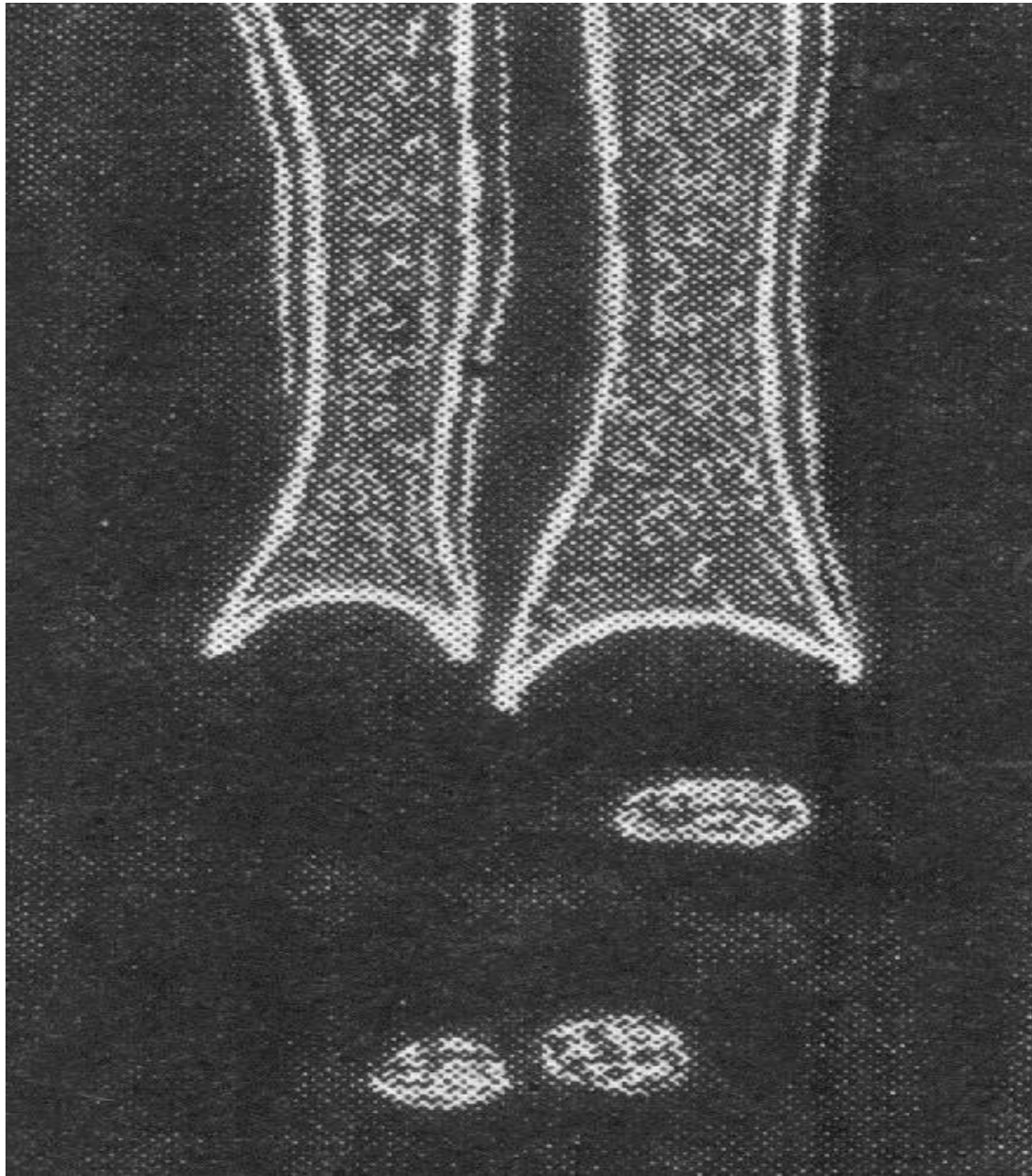


**Active rickets**





**Active rickets**

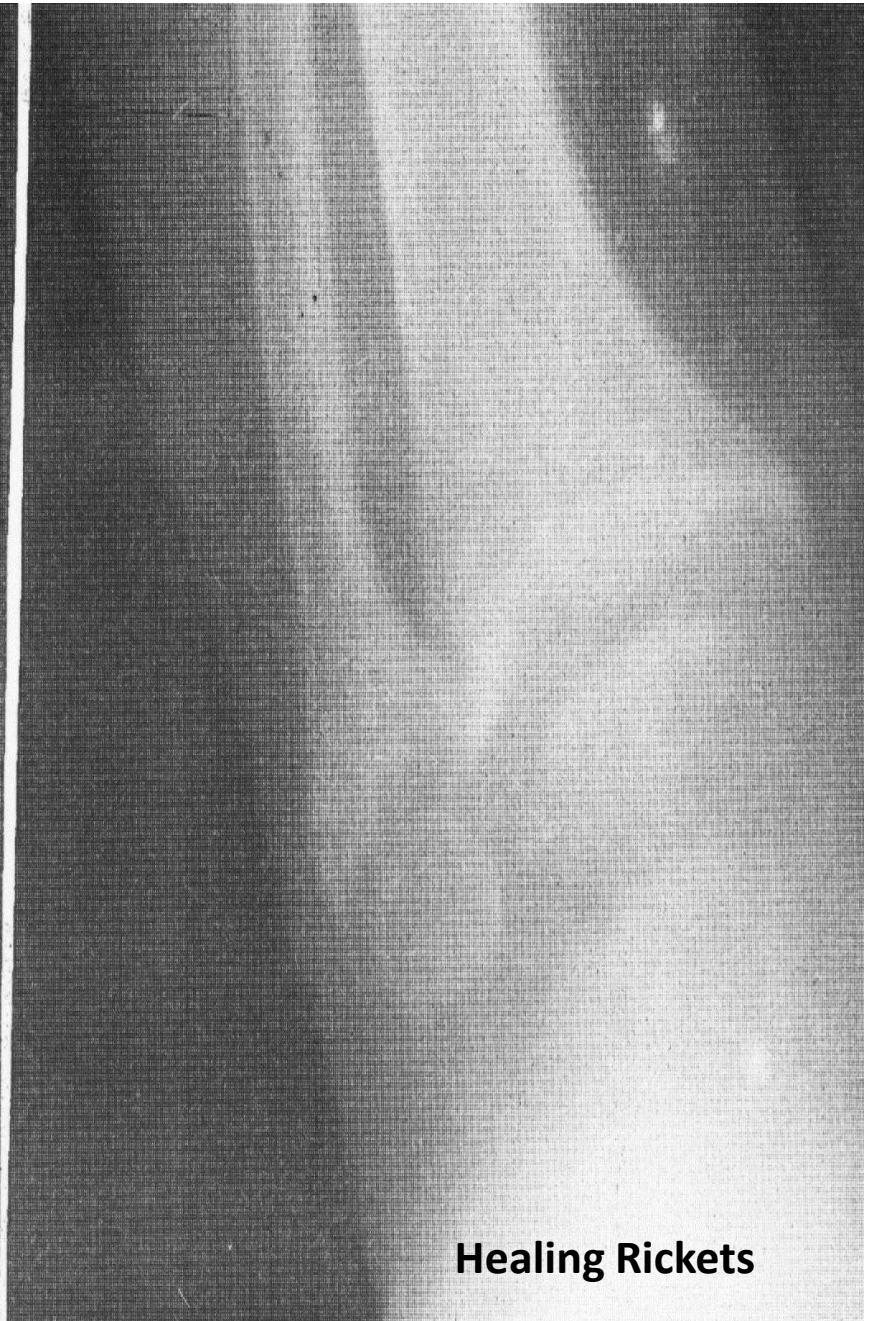


Healing Rickets

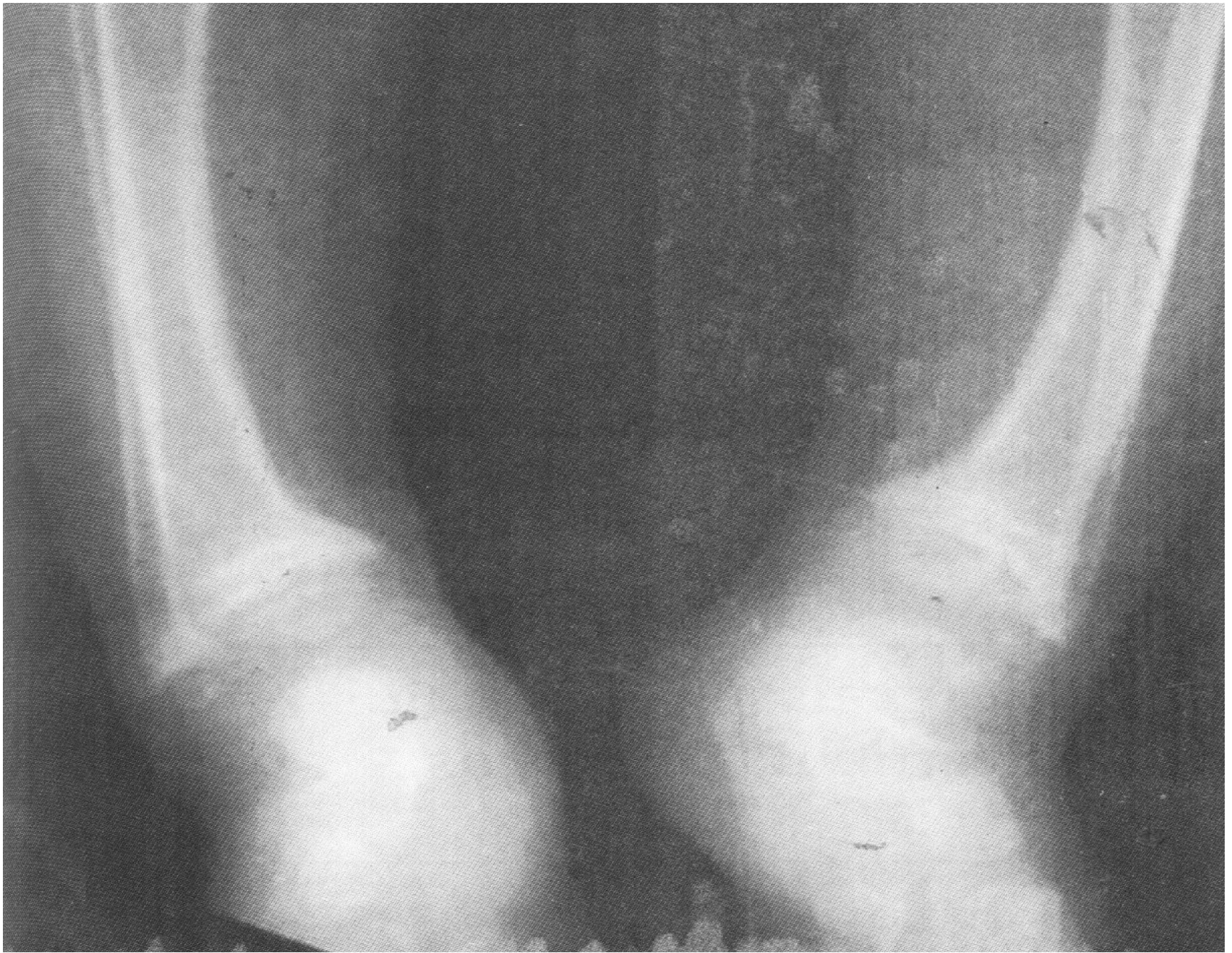




**Healing Rickets**



**Healing Rickets**



**Healing Rickets**





Healing Rickets



This is an anteroposterior (AP) radiograph of a child's wrist and hand. The image shows the distal radius and ulna at the top, with the carpal bones in the middle. The metacarpals and phalanges of the fingers are visible at the bottom. There are several radiographic signs of rickets: the distal ends of the radius and ulna show irregular, frayed margins and a loss of the normal smooth cortical outline; the carpal bones appear somewhat irregular in shape; and the metacarpals and phalanges show varying degrees of bowing and irregularity in their cortical structure. A white rectangular box with the word 'Rickets' in black text is located in the lower-left corner of the image.

**Rickets**





**Healing Rickets**

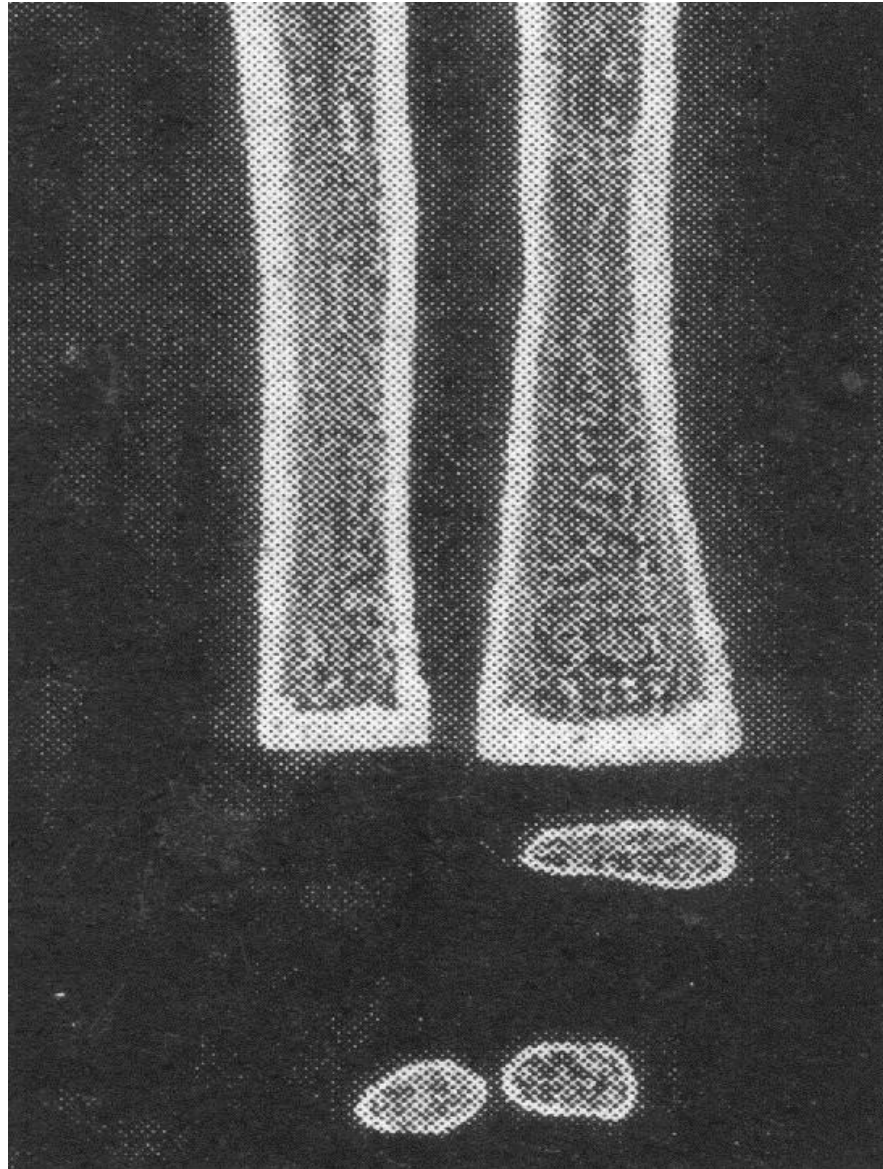


**Healing Rickets**





**Healing Rickets**



**Healed Rickets**





**Healed Rickets**

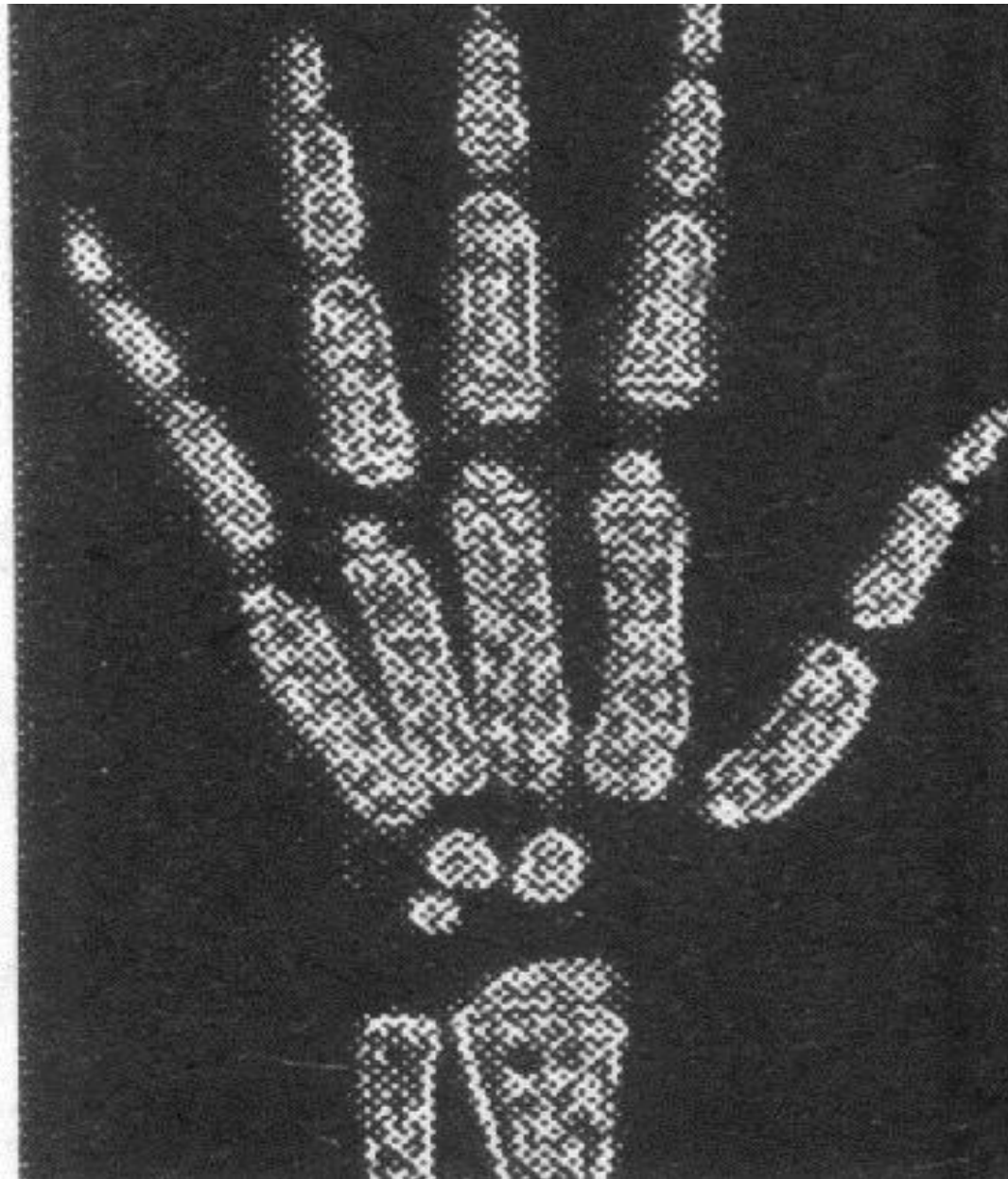


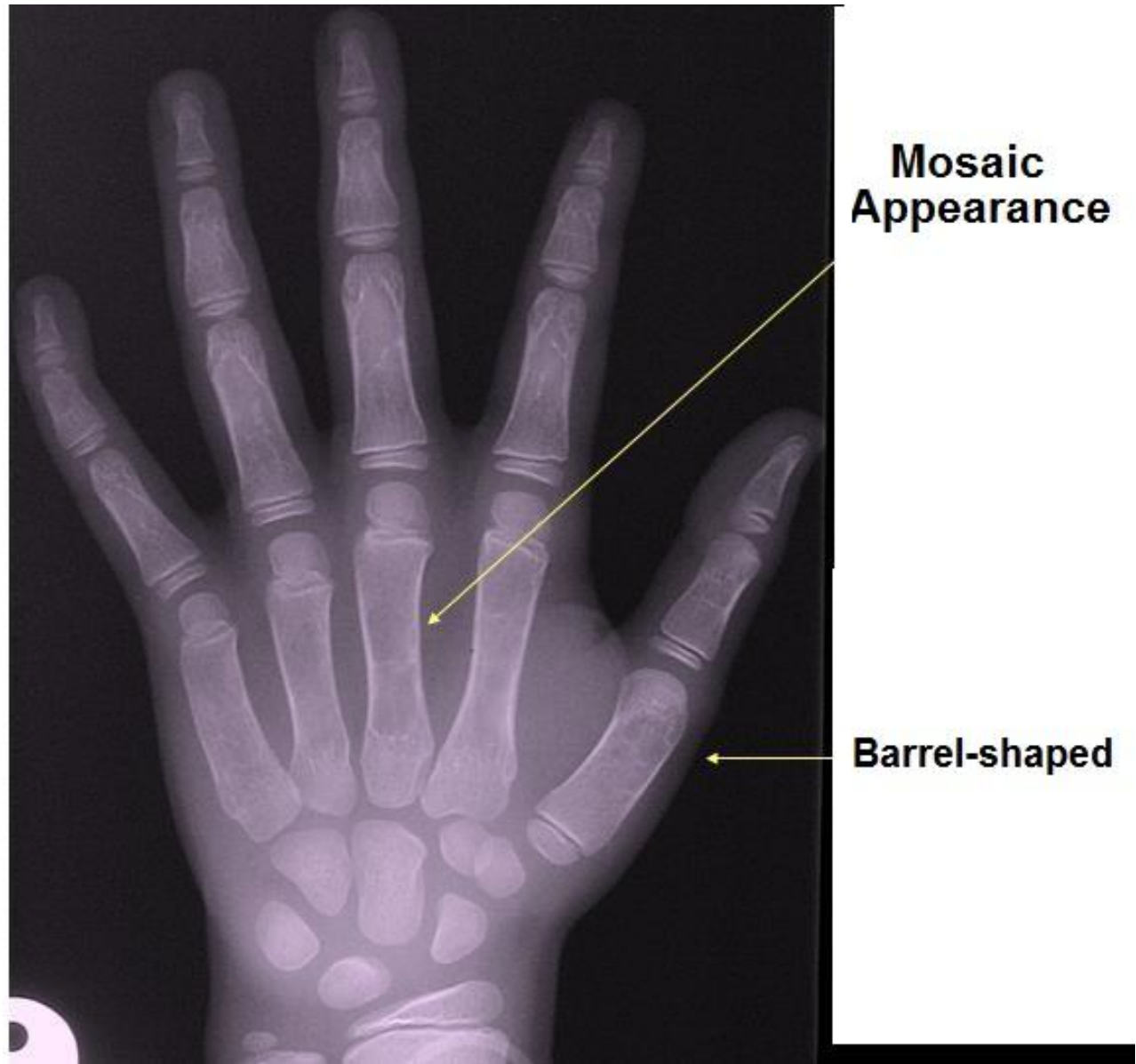


**Healed Rickets**



## Chronic Hemolytic Anemia





**Chronic hemolytic anemia**



**During infancy and early childhood (x-ray on hand and wrist)**



**First 3 months  
(no carpal bones)**



**At 4 months  
(one carpal bone)**



**At one year  
(2 carpal bones)**



**At one year  
(lower end of radius)**



**At 2 years  
(3 carpal bones)**



**At 3 years  
(4 carpal bones)**



**At 4 years  
(5 carpal bones)**



**At 6 years  
(6 - 7 carpal bones  
and lower end of ulna)**



**Normal**



**Delayed Bone age**

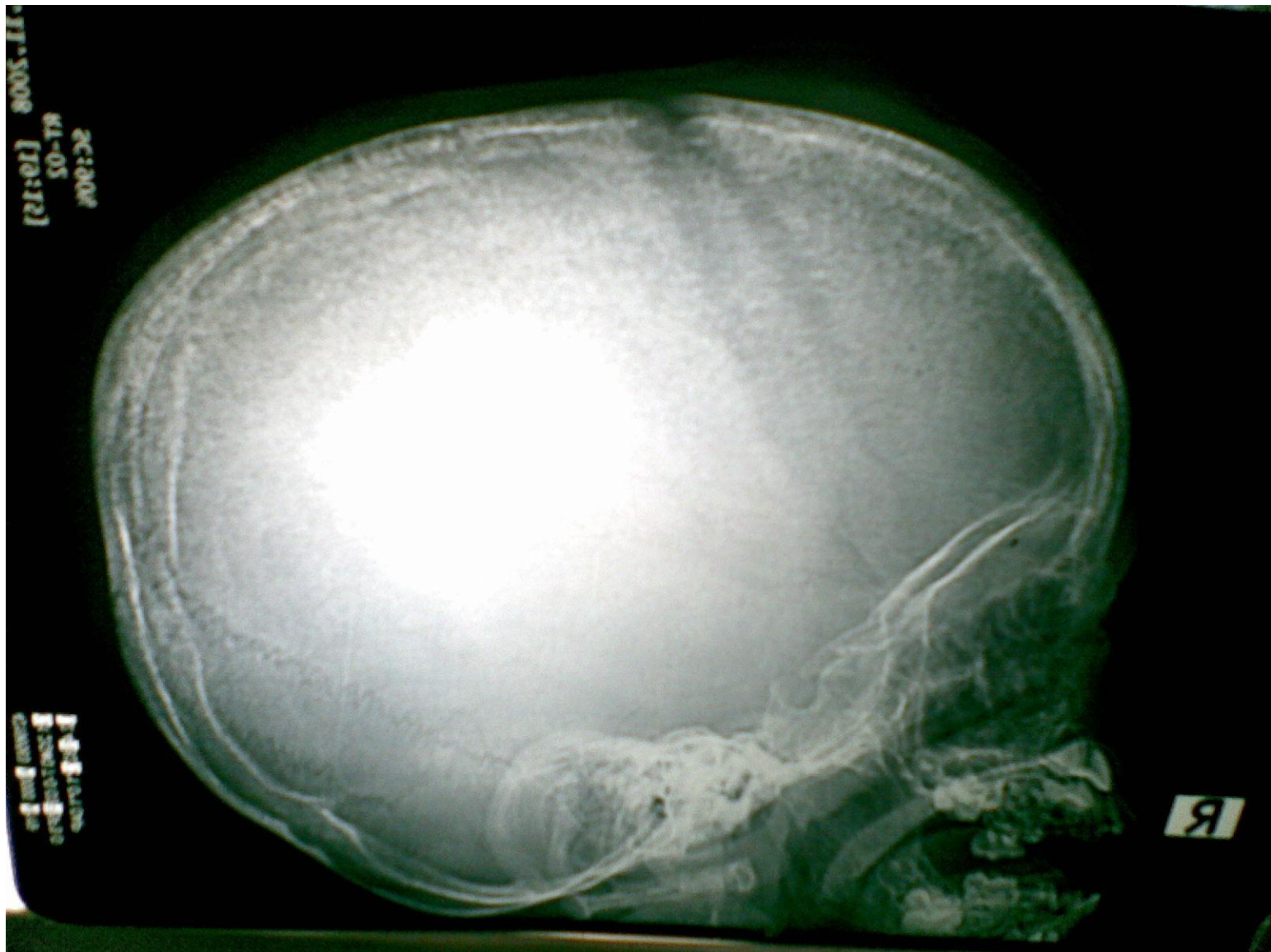




A lateral cephalometric radiograph (X-ray) of a human skull. The image shows the profile of the skull, including the cranium, facial bones, and the dental arches. The mandible is visible at the bottom left, showing the teeth. The maxilla is visible in the center, and the nasal cavity is visible above it. The cranium is the large, rounded structure at the top. The image is in black and white, with the skull appearing as a light gray silhouette against a dark background.

**CHA**

**CHA**



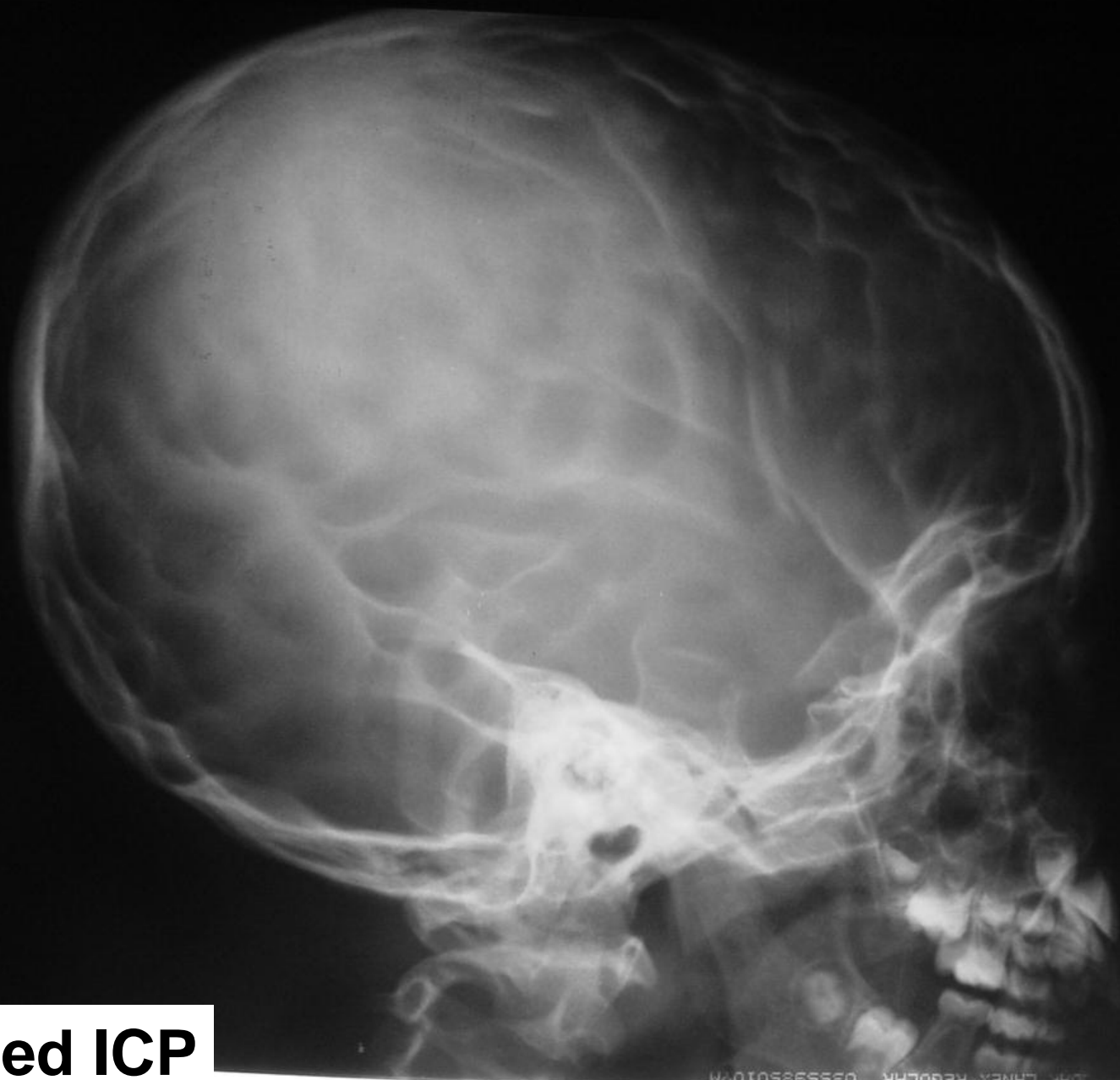
**(Hydrocephalus)** craniofacial disproportion



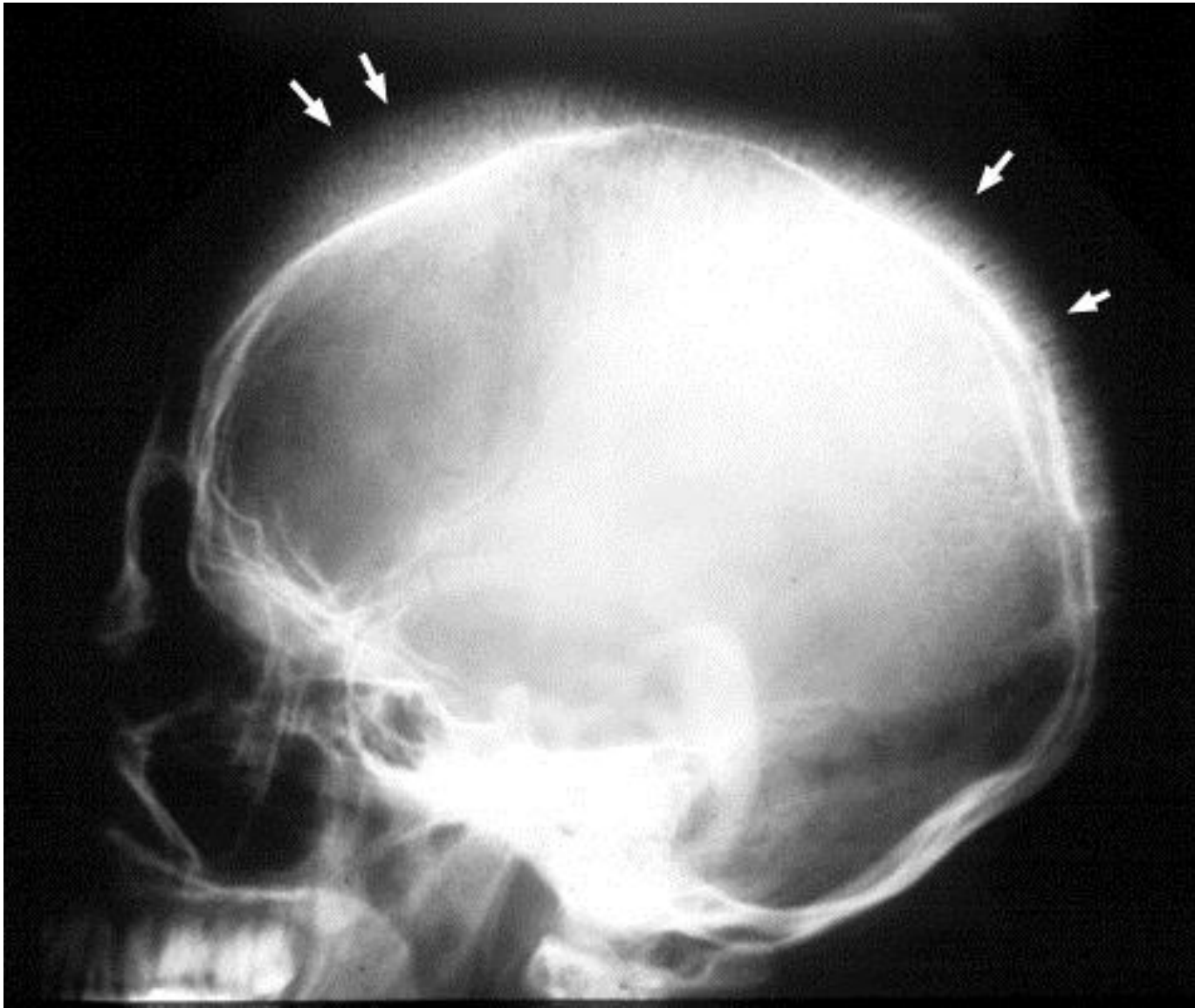


A lateral skull X-ray image showing a significantly enlarged, rounded skull. The internal structures, including the brain and ventricles, are obscured by the excessive soft tissue density. The base of the skull and the cervical spine are visible at the bottom of the image.

**Hydrocephalus**

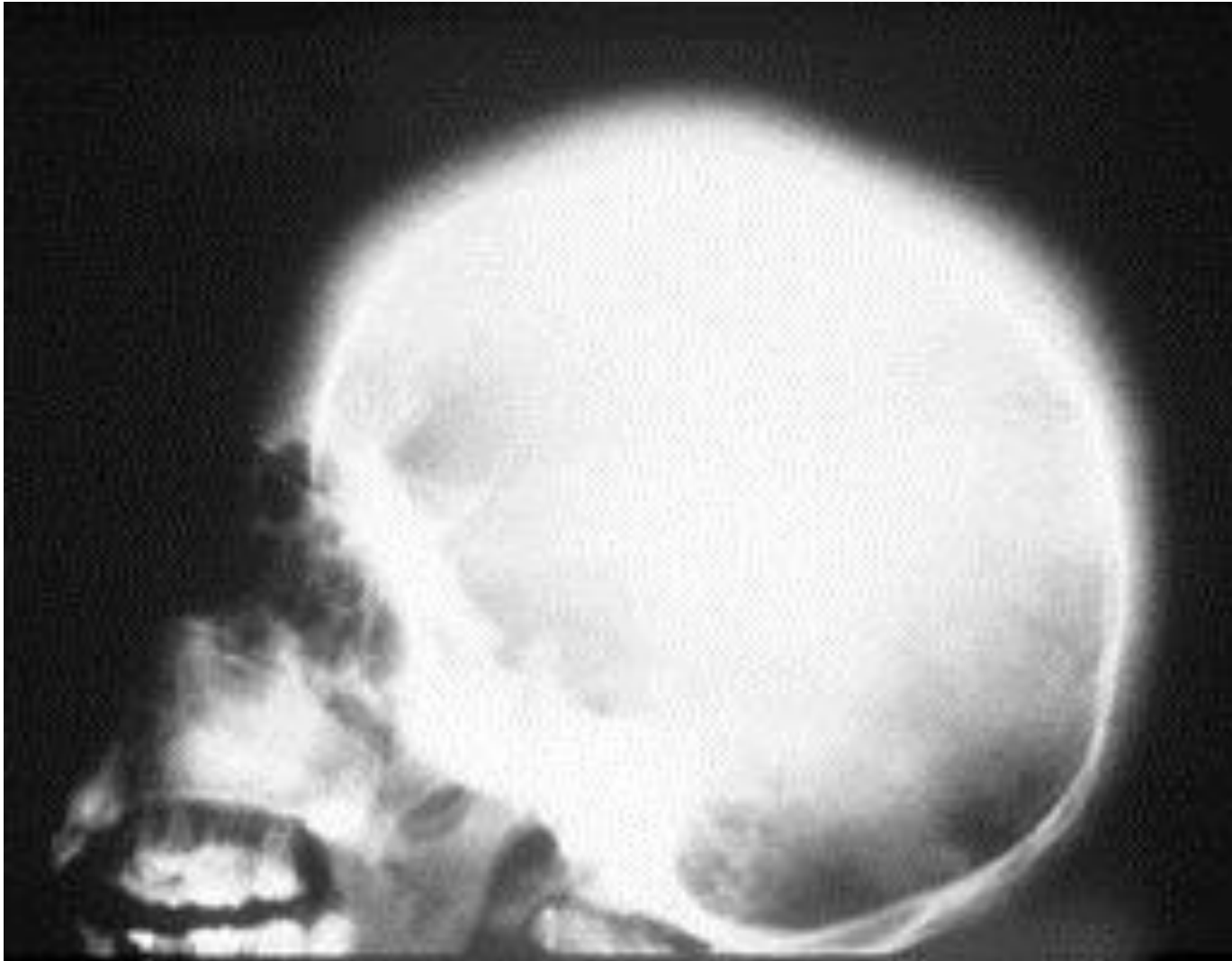


**Raised ICP**



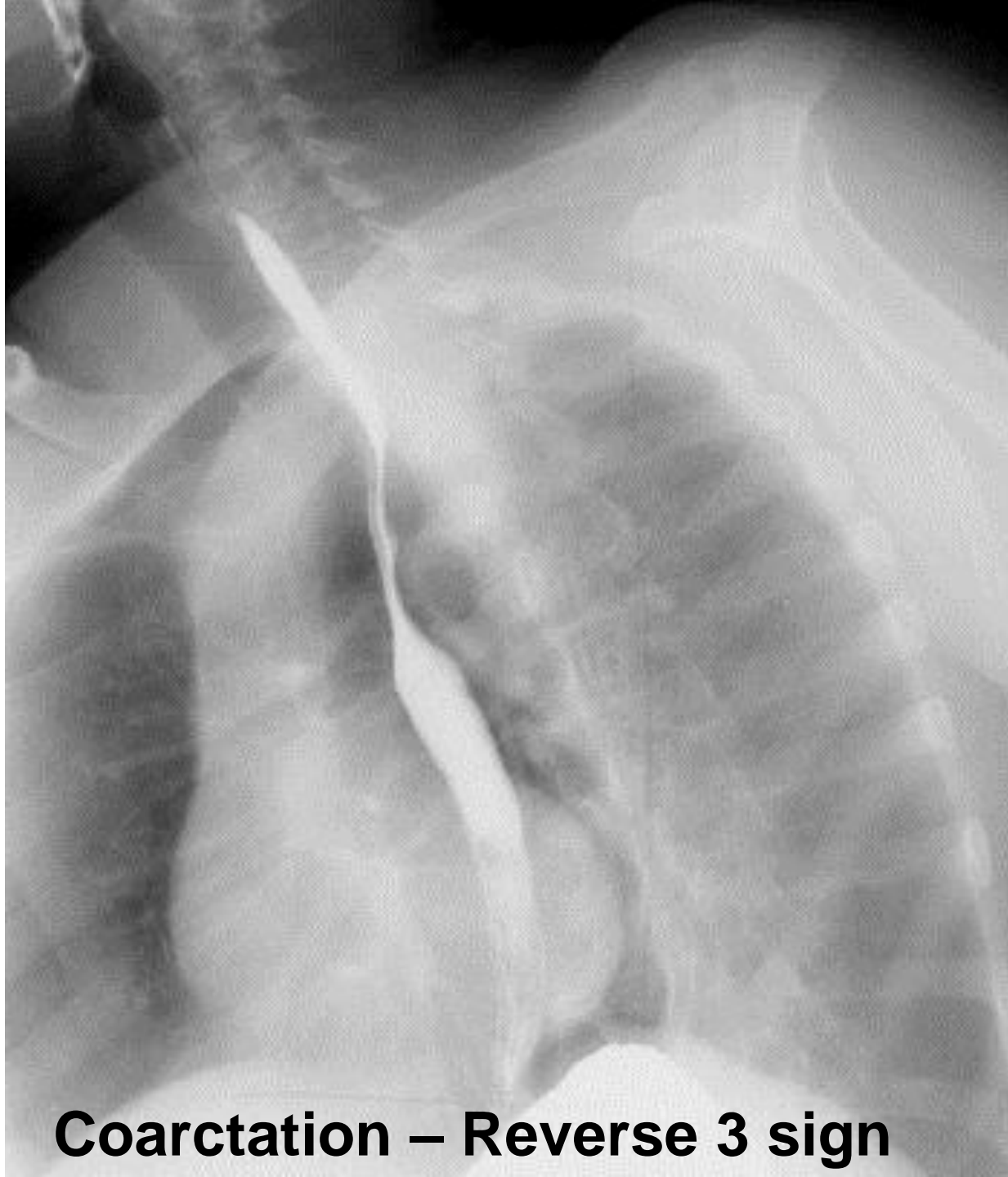
**(Hair on end) chronic hemolytic anemia**





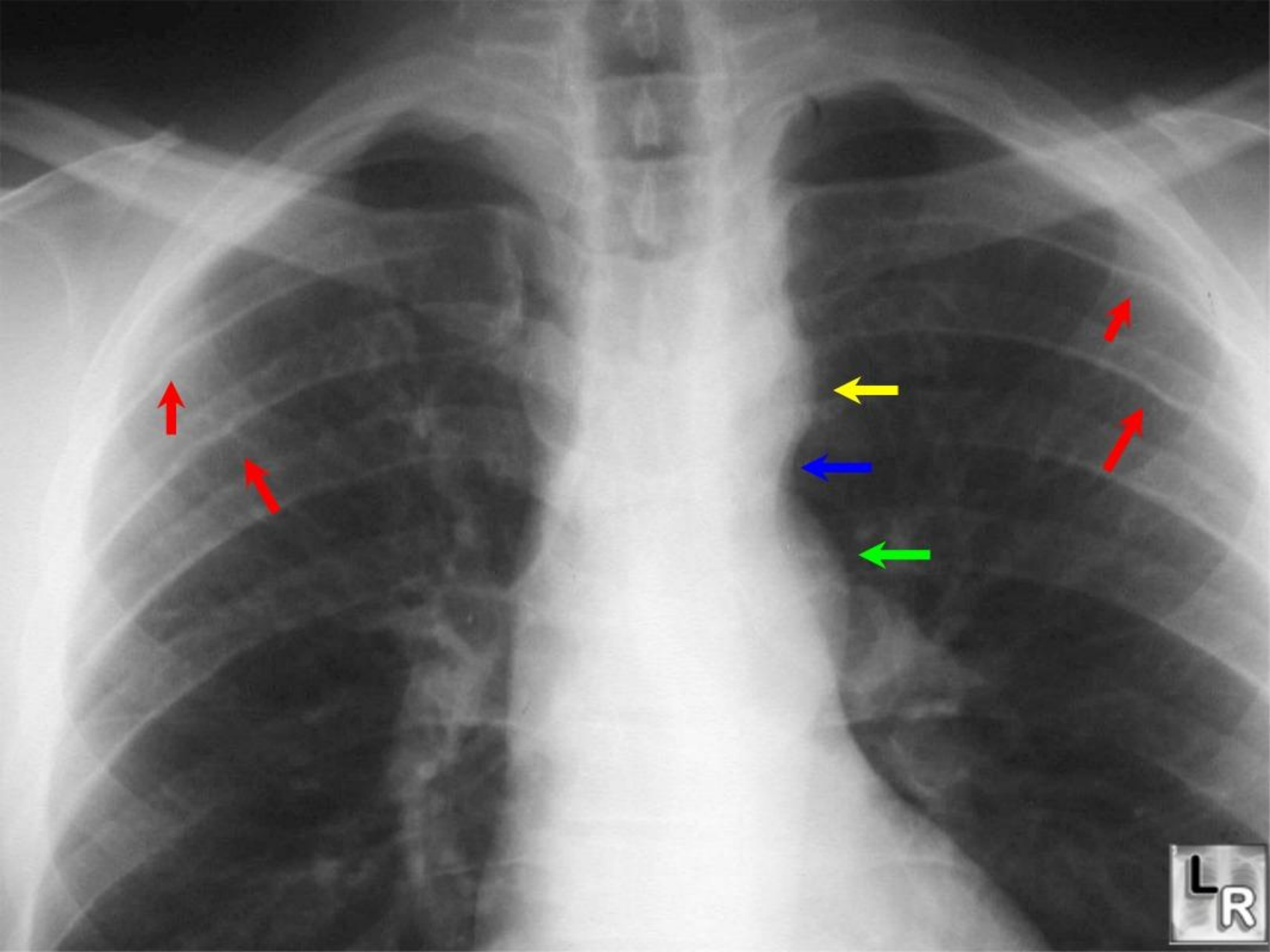
**(Hair on end) chronic hemolytic anemia**

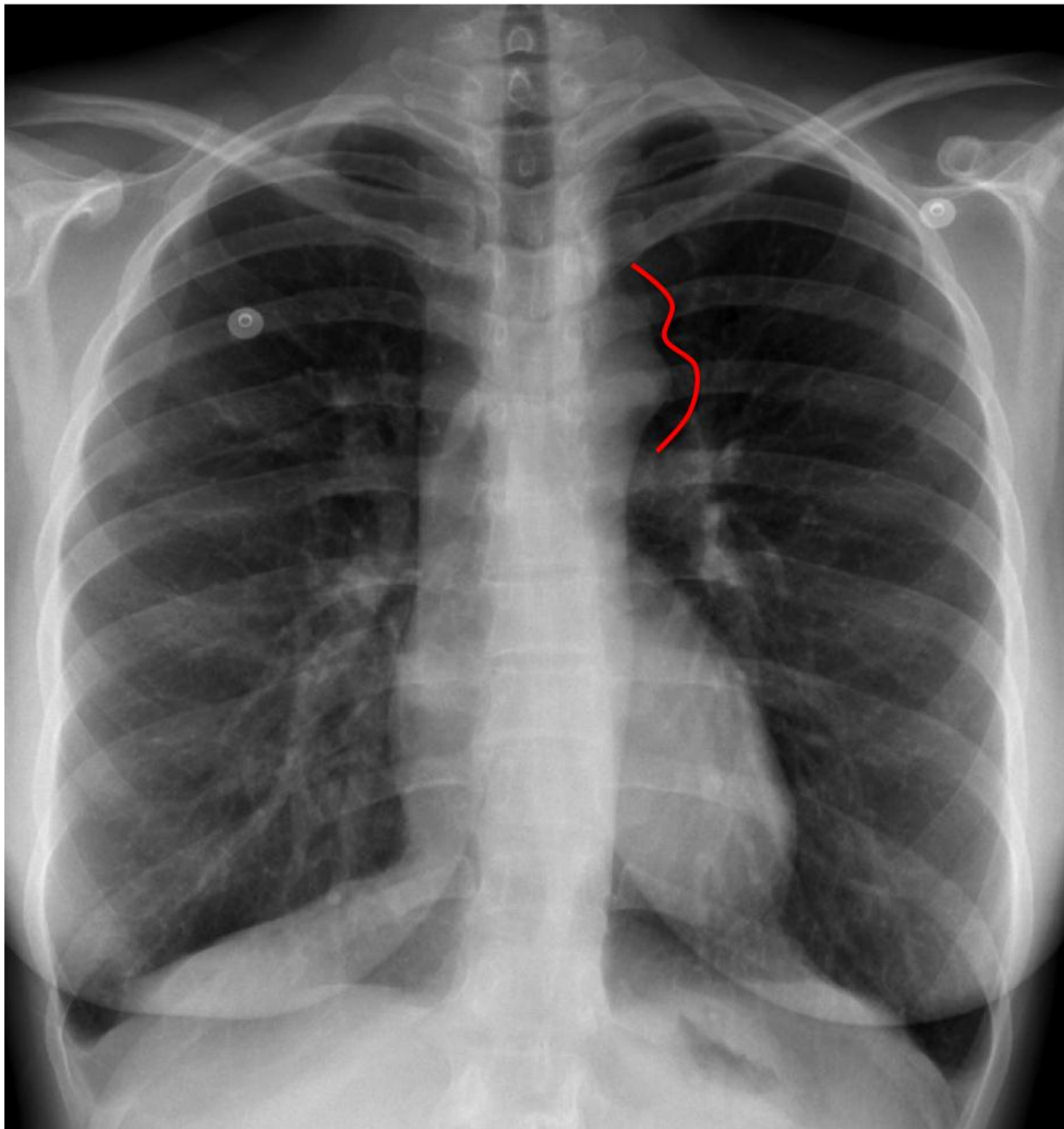
**Added X-Rays**

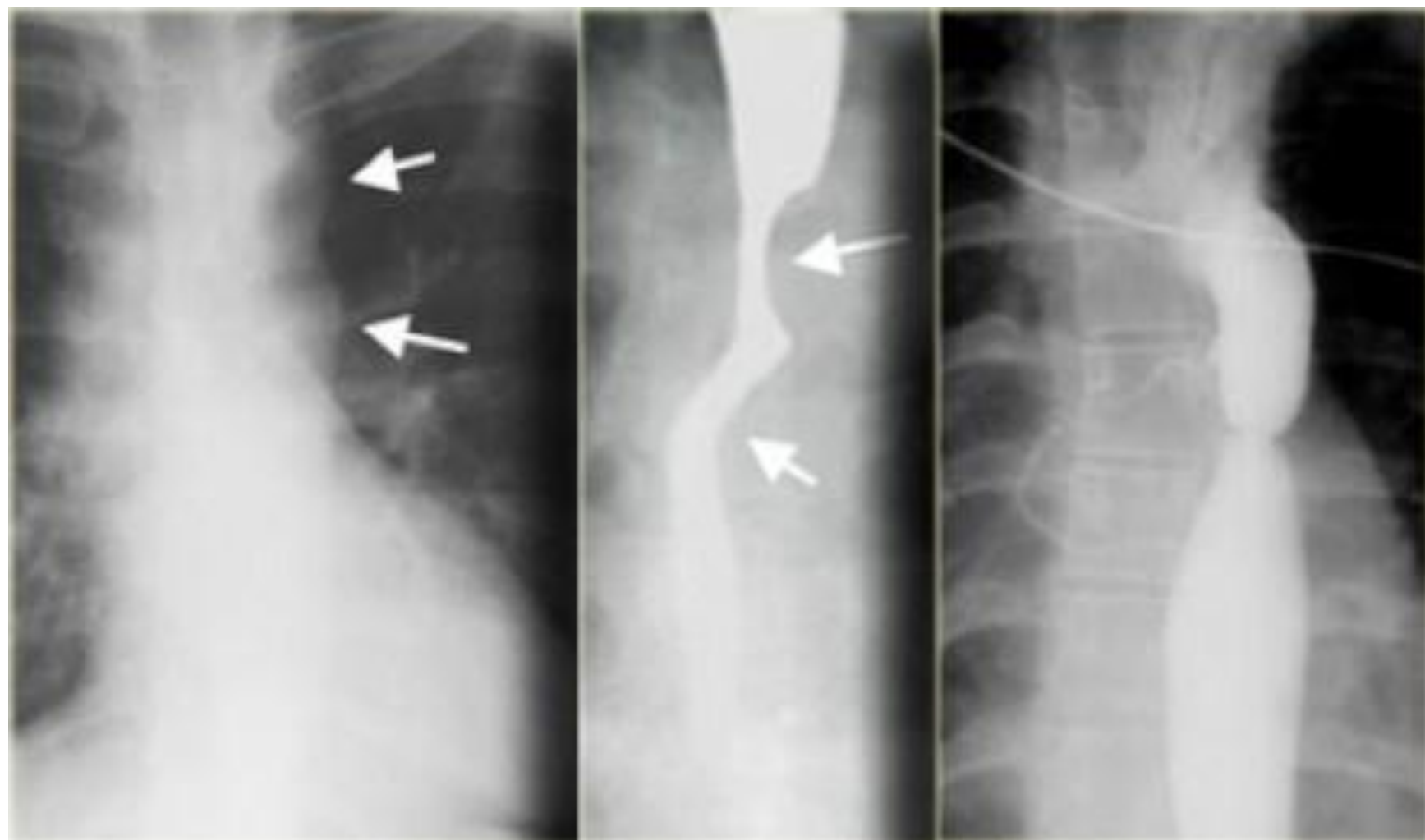


**Coarctation – Reverse 3 sign**

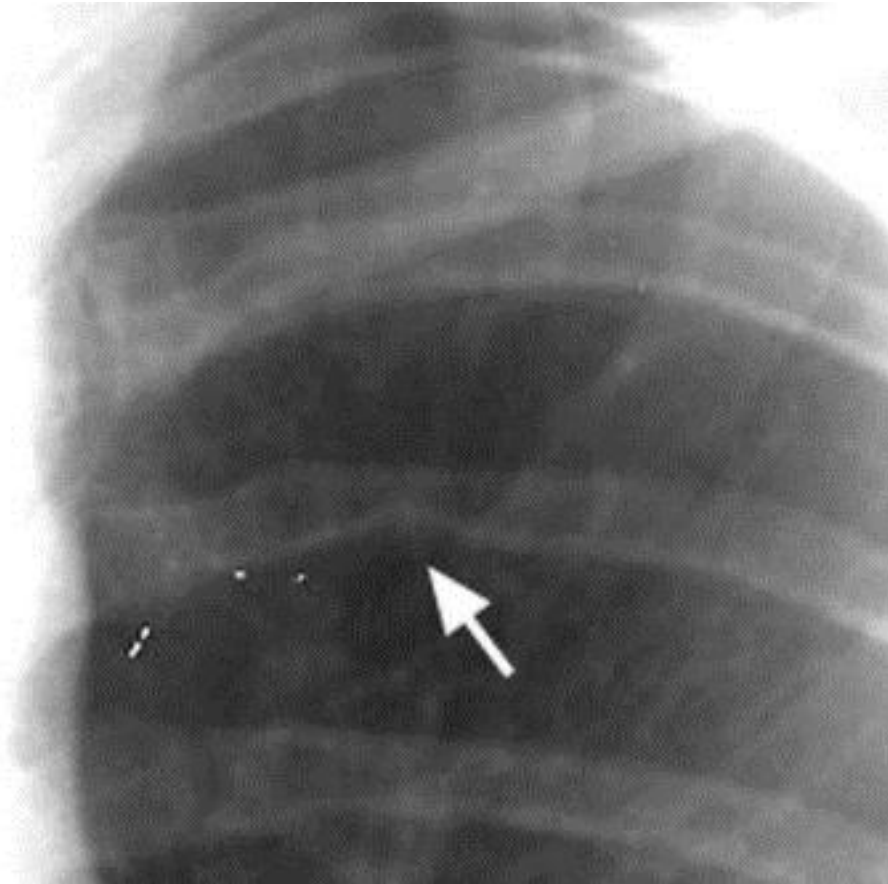








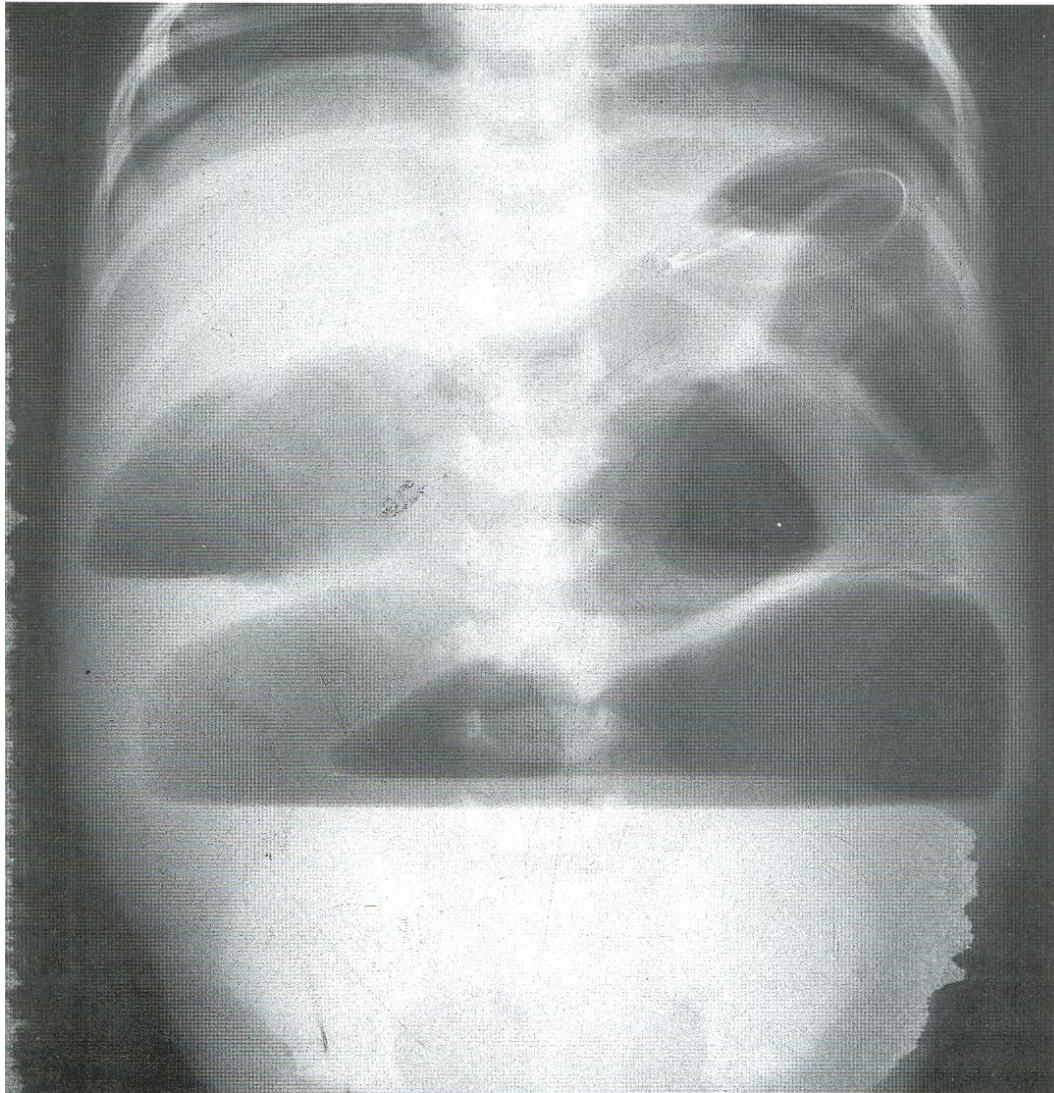




**Coarctation – Rib notching**



**TAPVR**

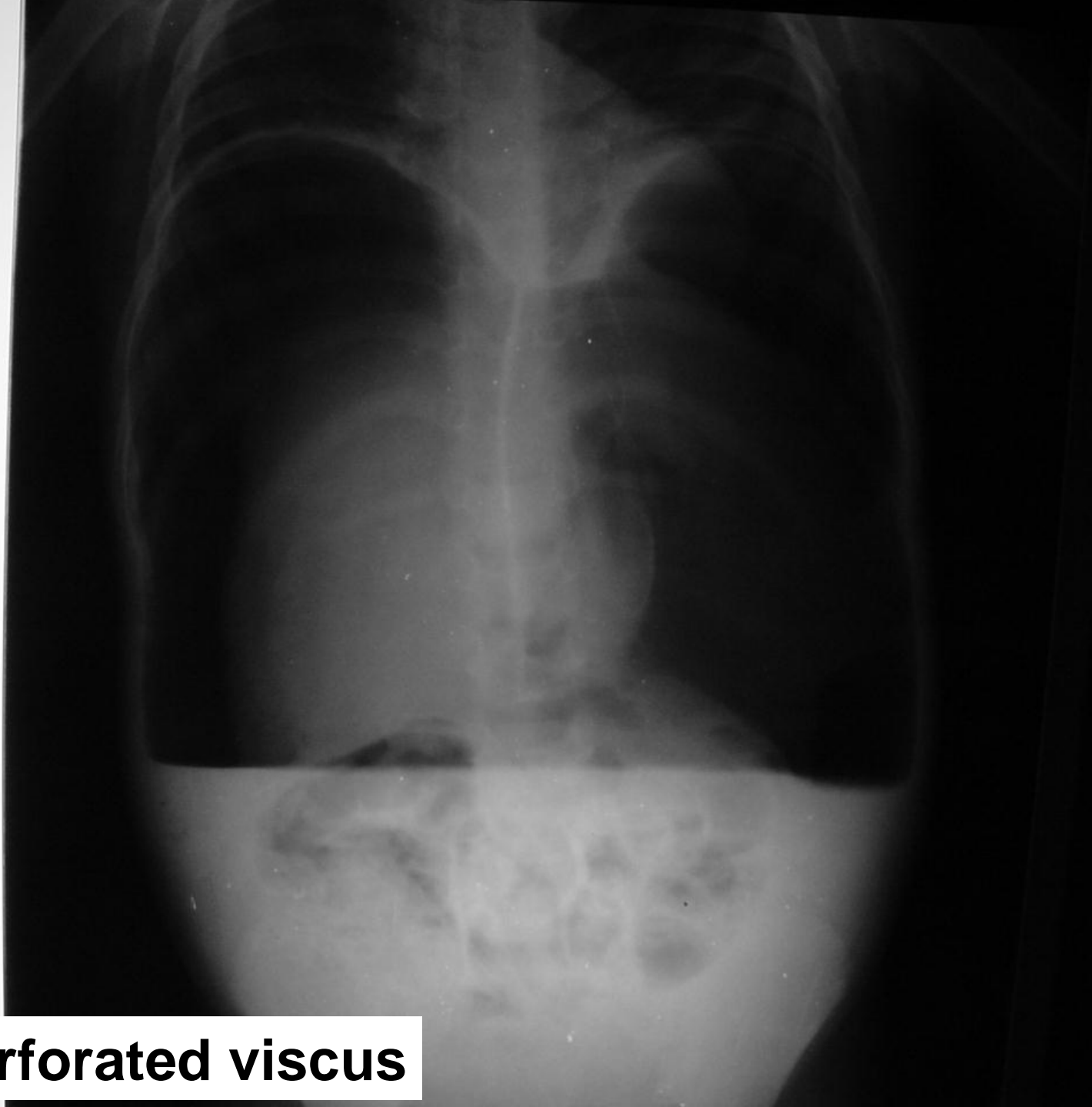


**(Intestinal Obstruction)**





**Pneumoperitoneum**



**Perforated viscus**



**Diaphragmatic Hernia**

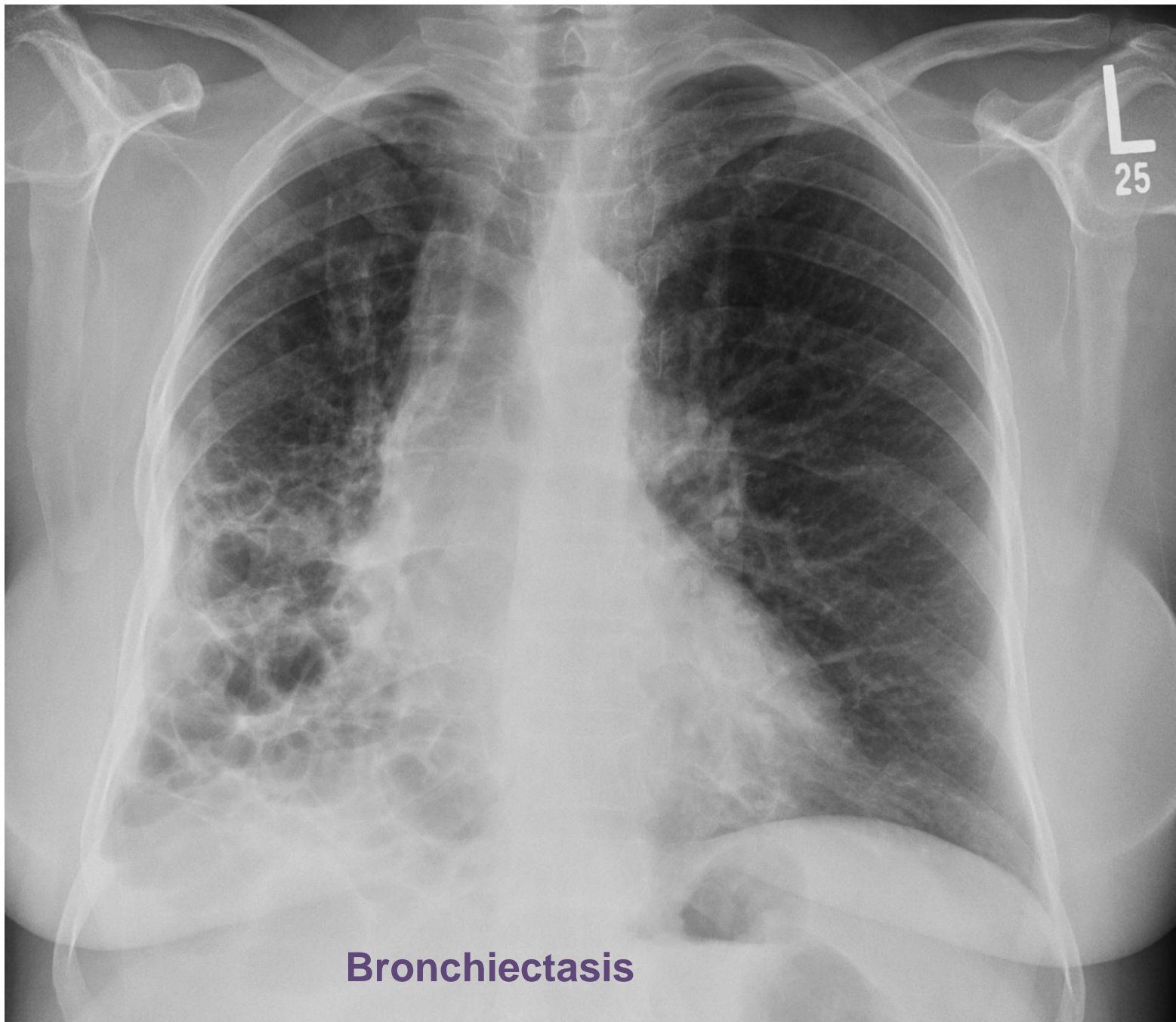




**Osteogenesis imperfecta**

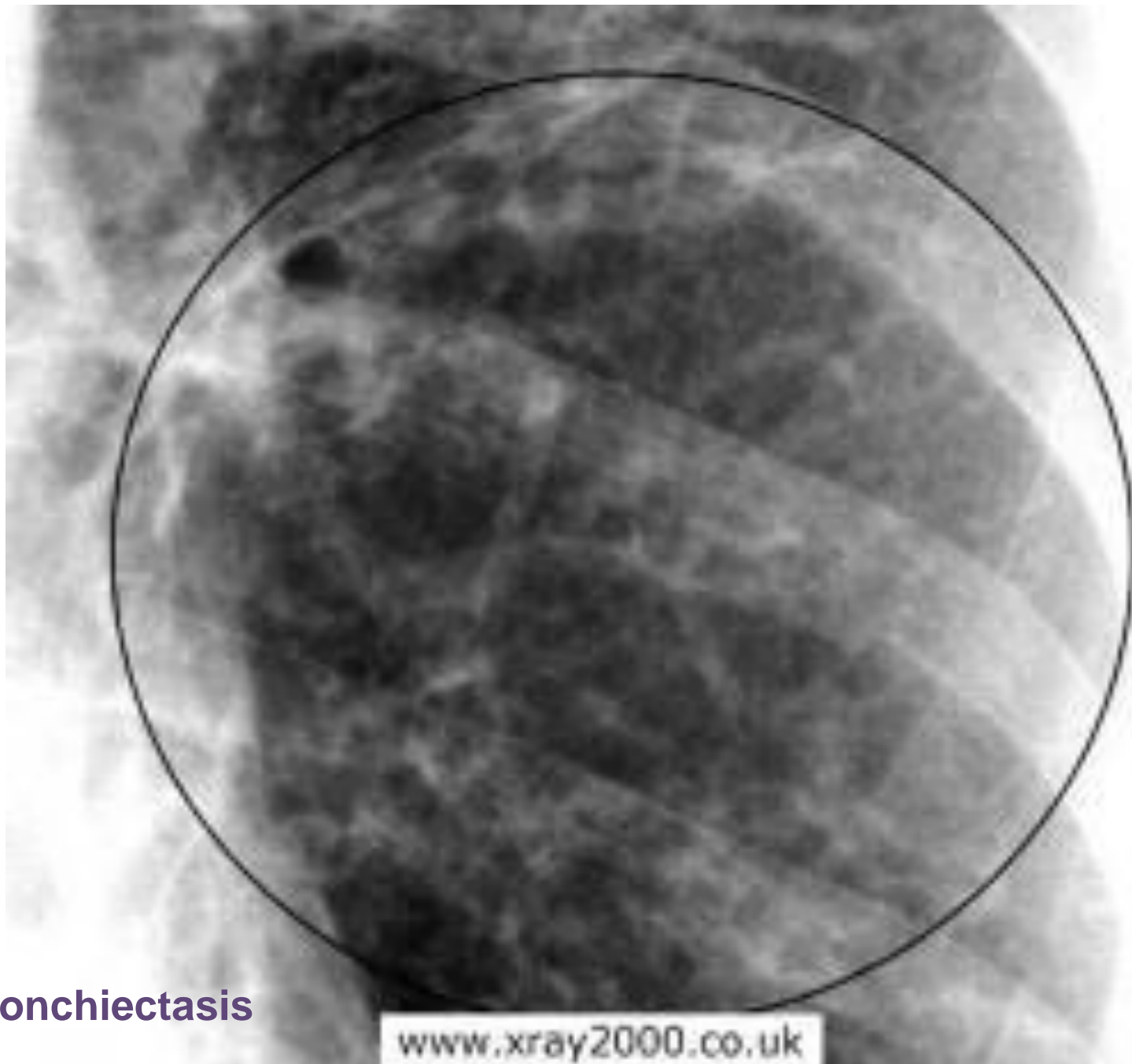


**Osteopetrosis**



**Bronchiectasis**



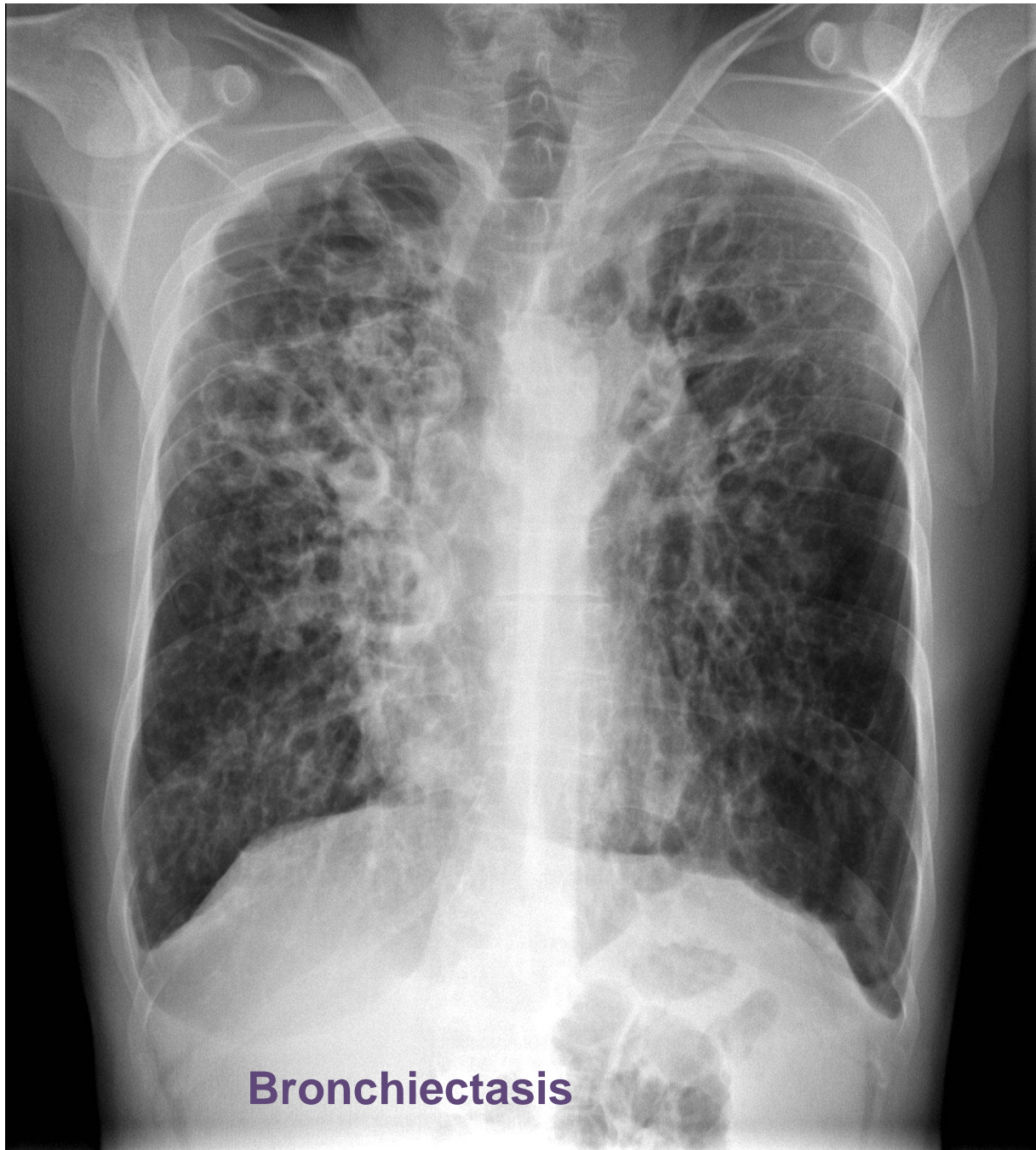


**Bronchiectasis**



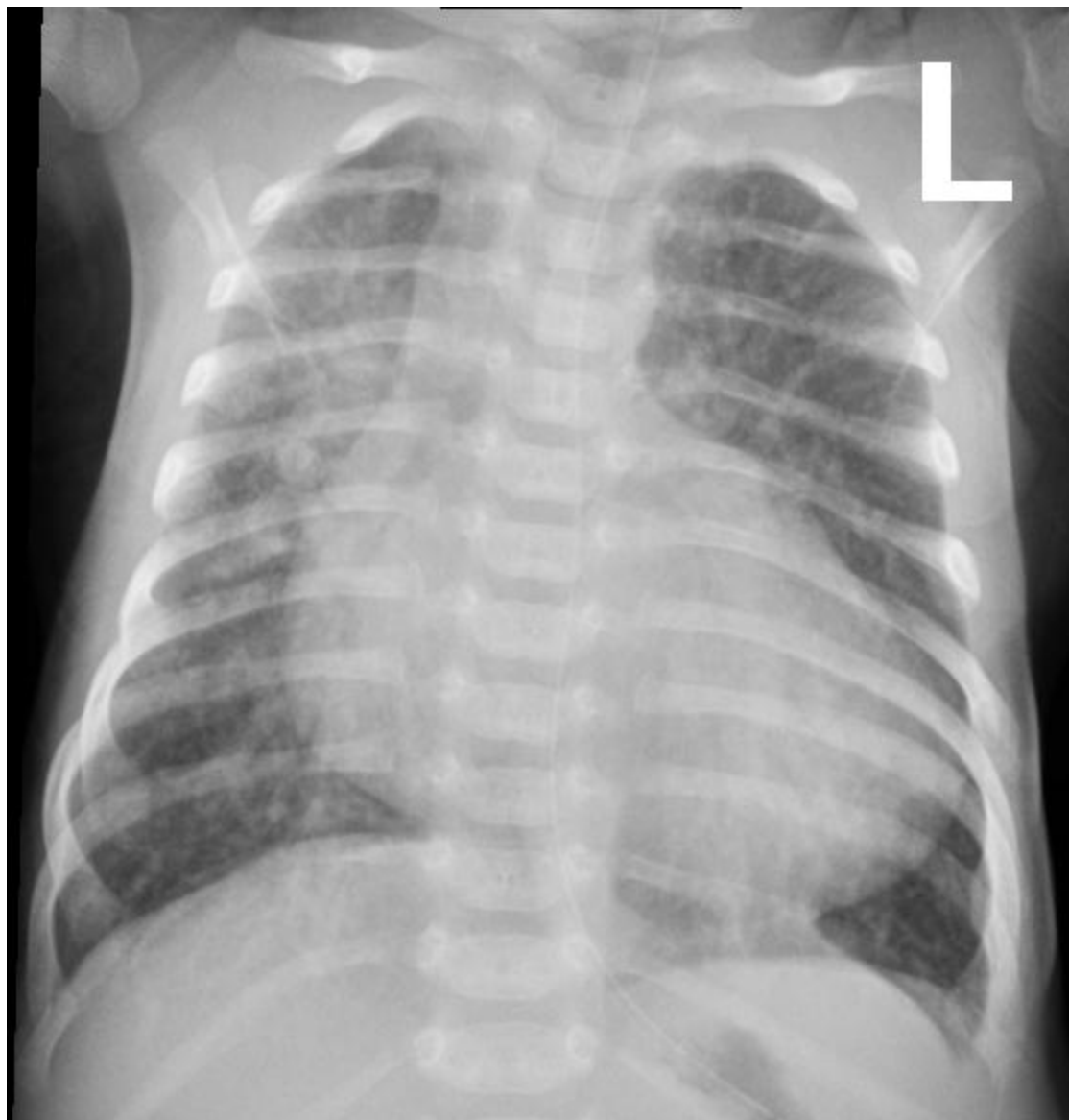
**Bronchiectasis**

[www.xray2000.co.uk](http://www.xray2000.co.uk)

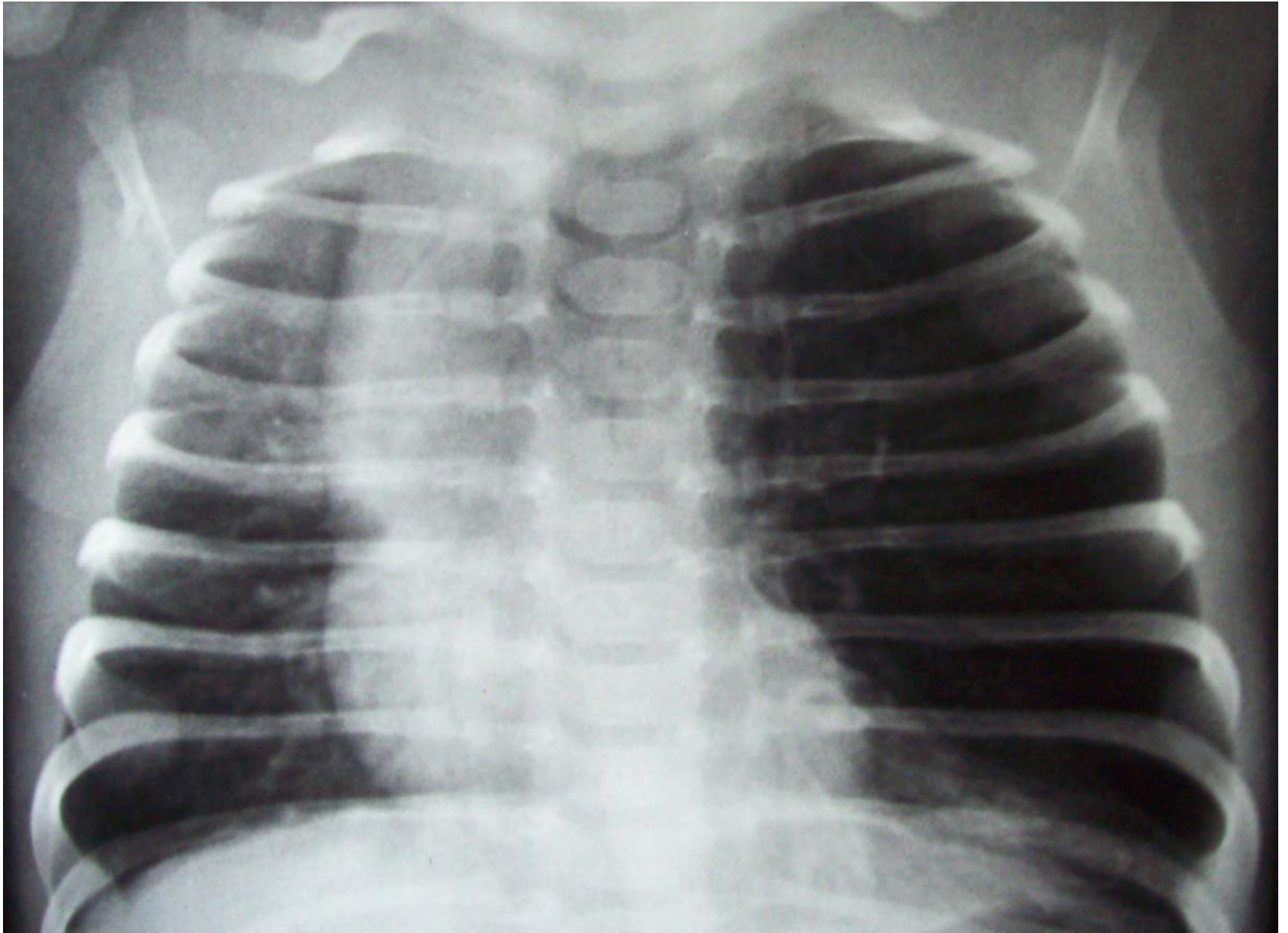


**Bronchiectasis**

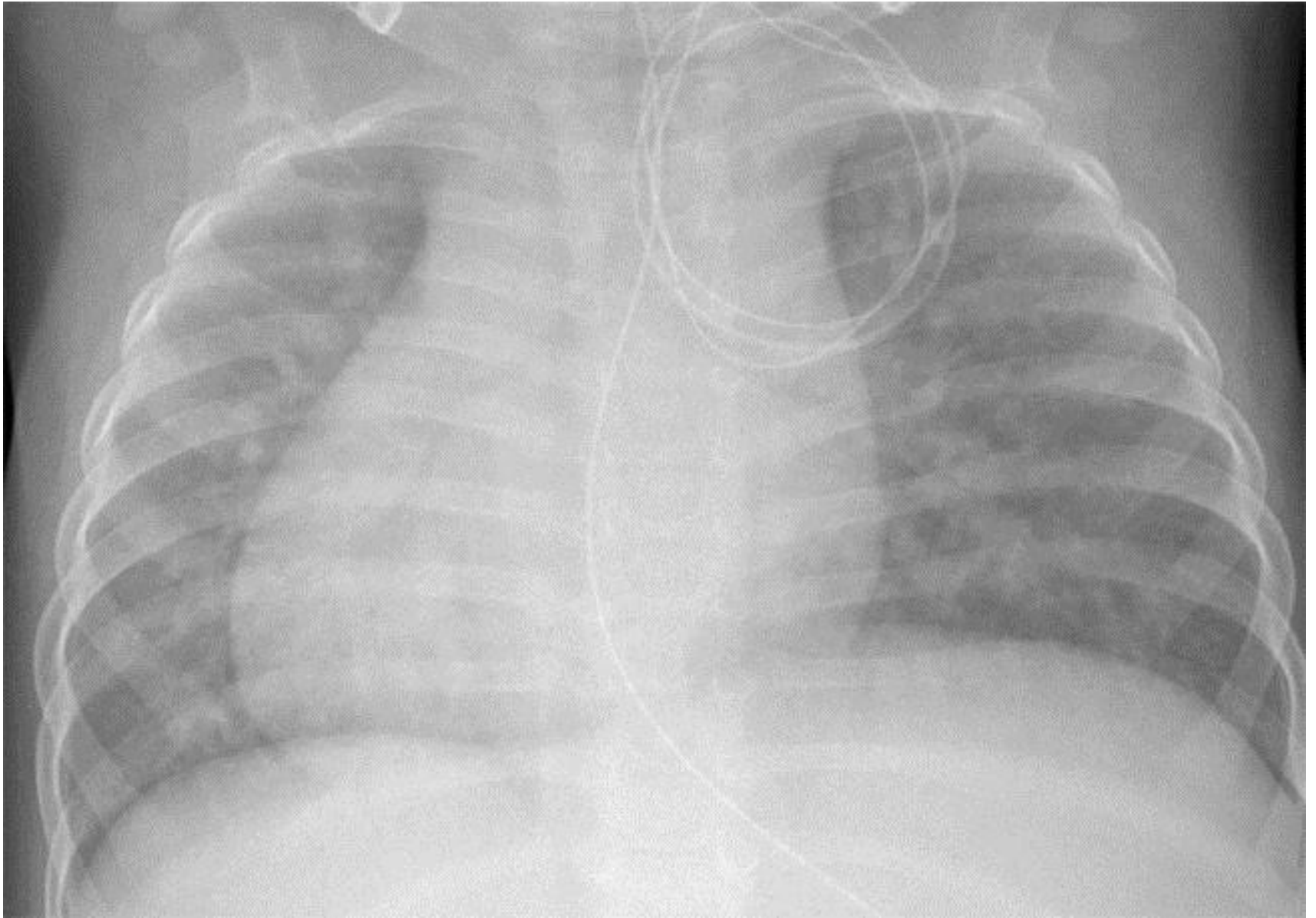




**TGA**

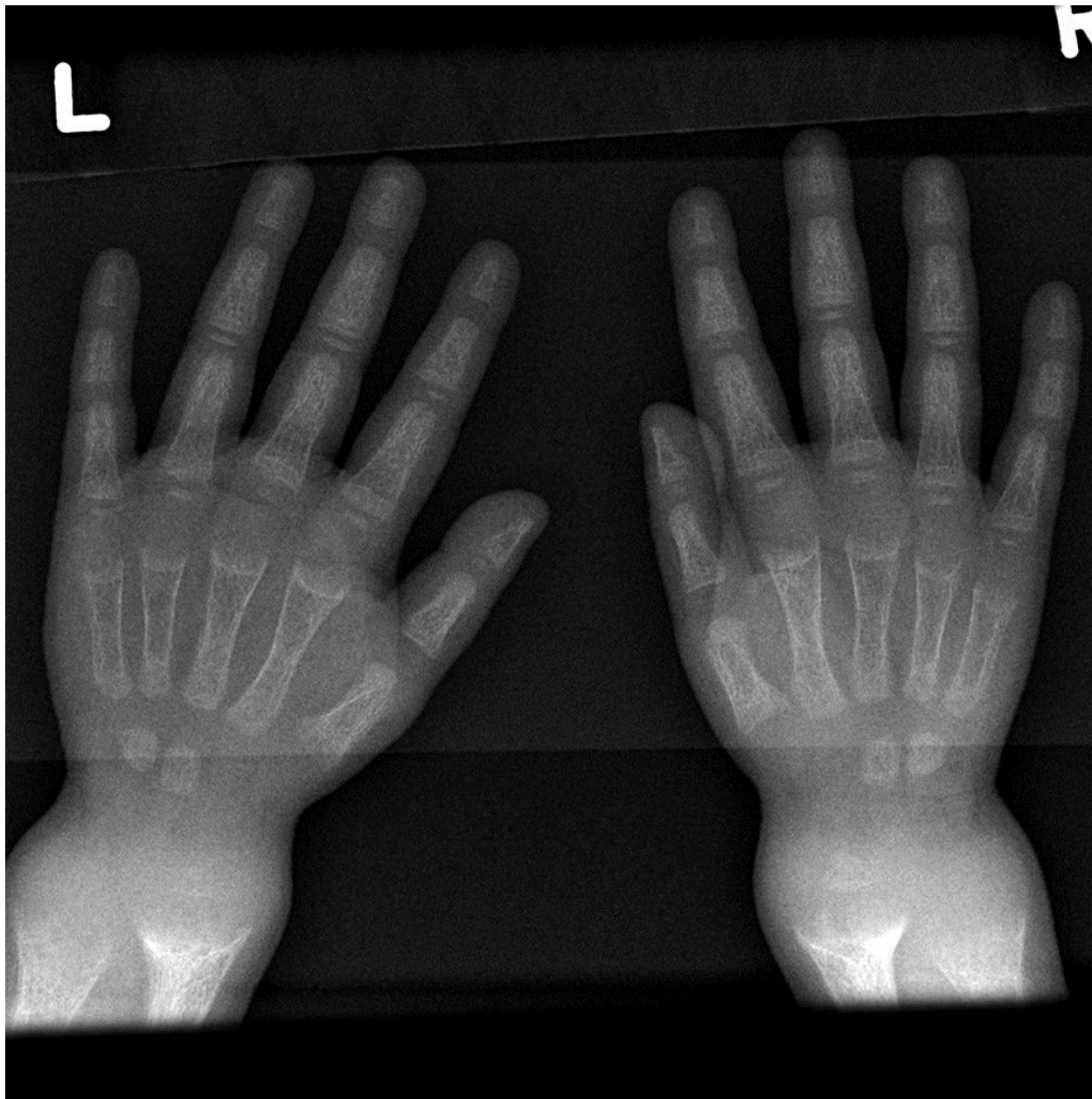


**Congenital lobar Emphysema**



**Dextrocardia**

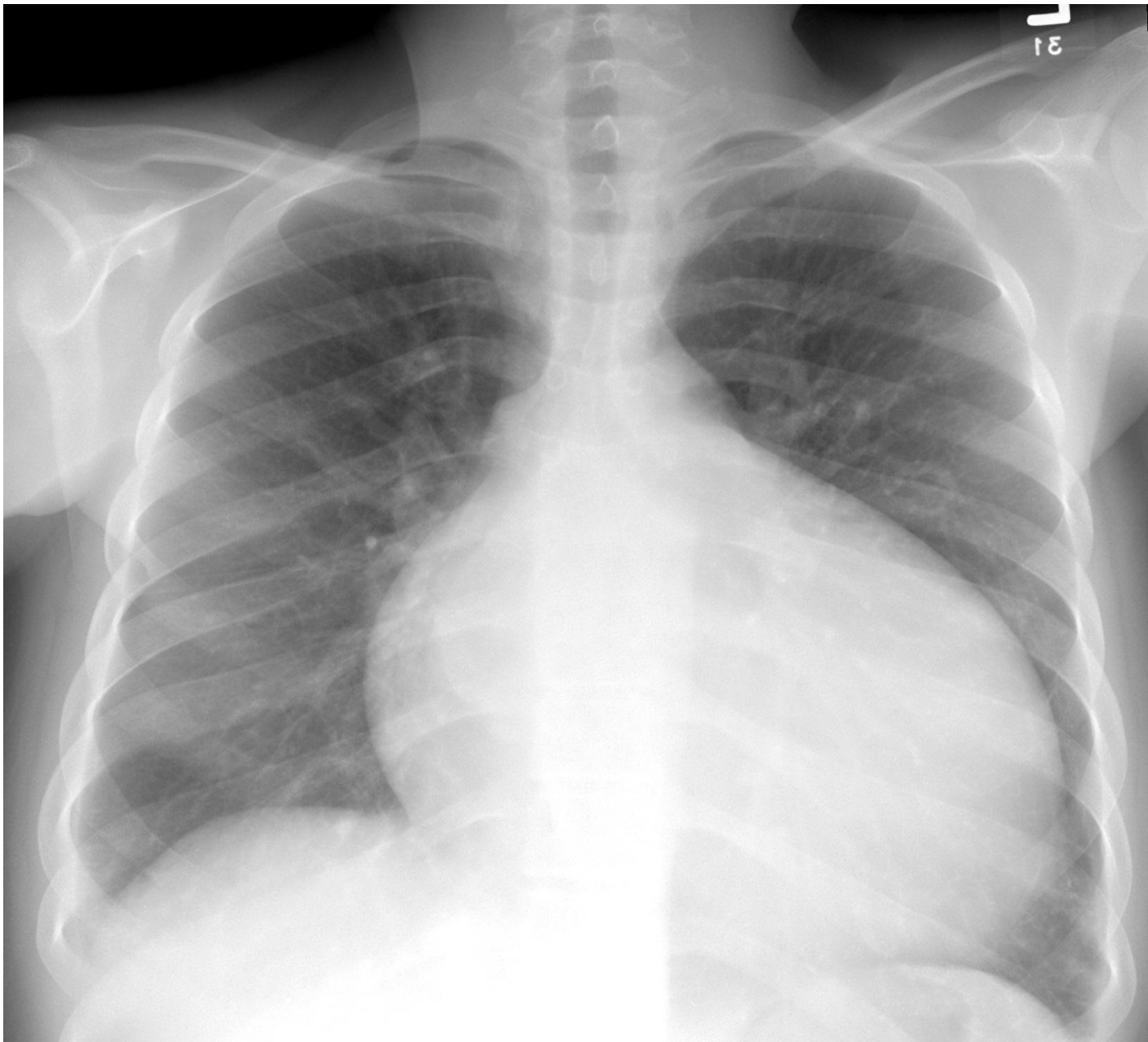




**Active Rickets**

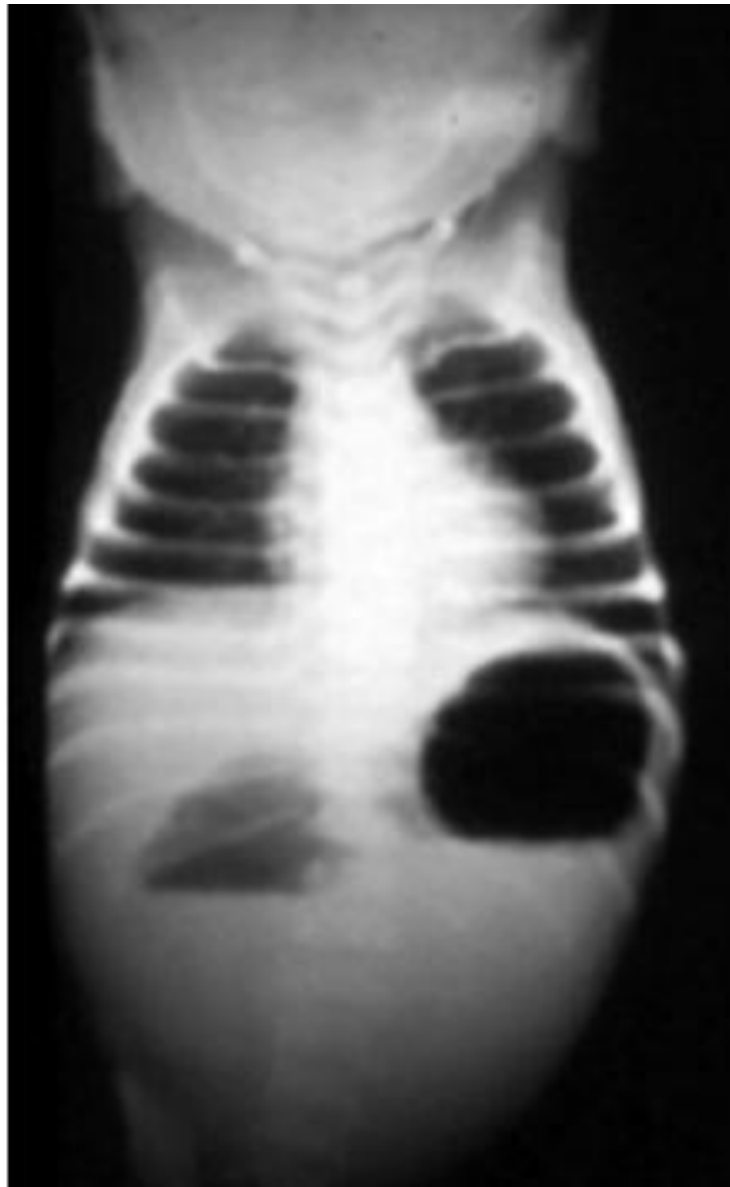


TOF

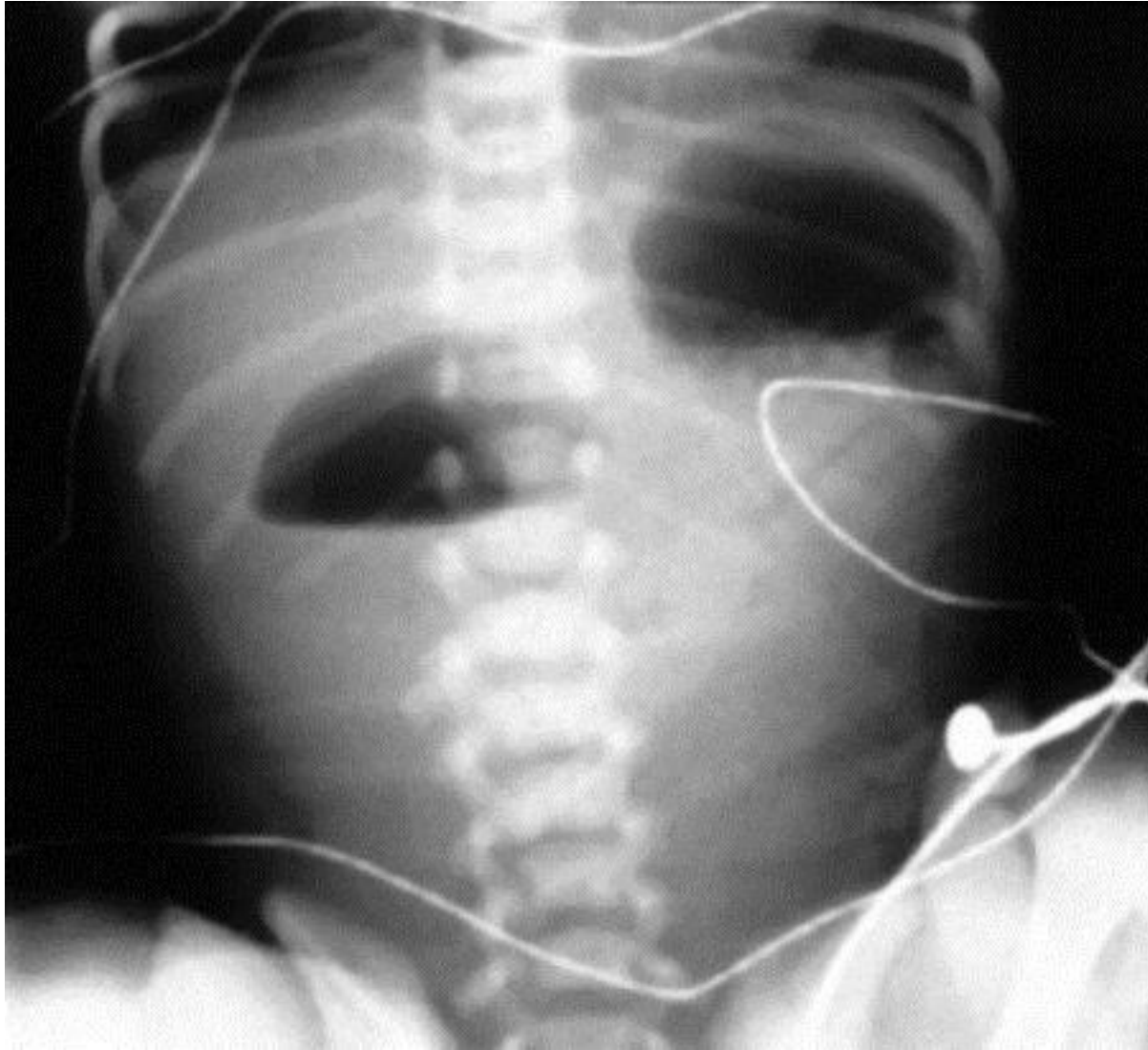


**Cardiomyopathy**

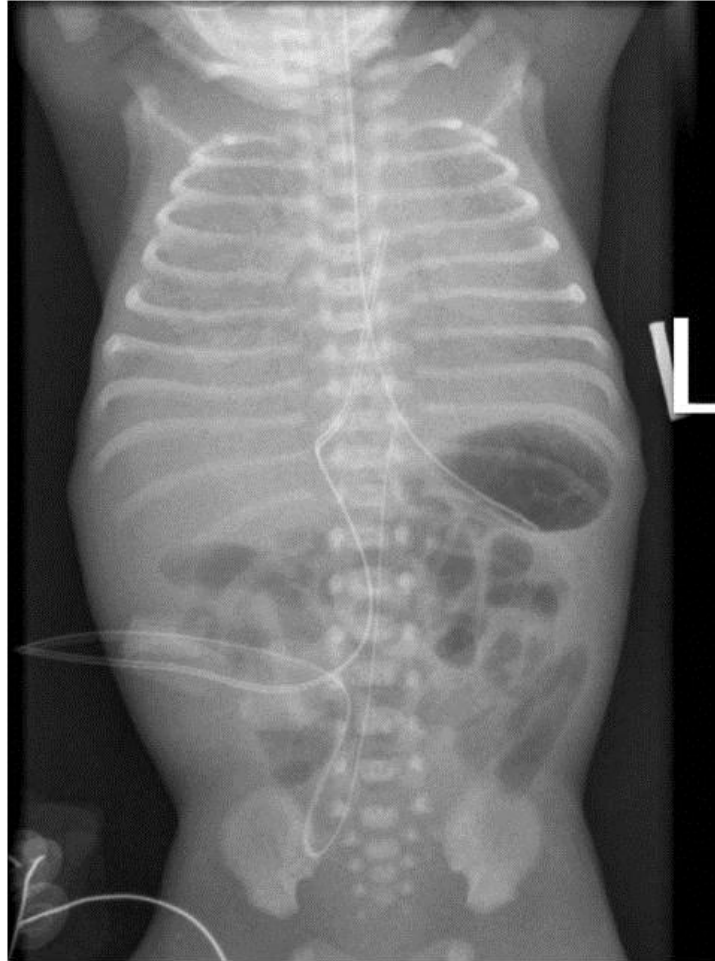




**Duodenal Atresia**



**Duodenal Atresia**



RDS





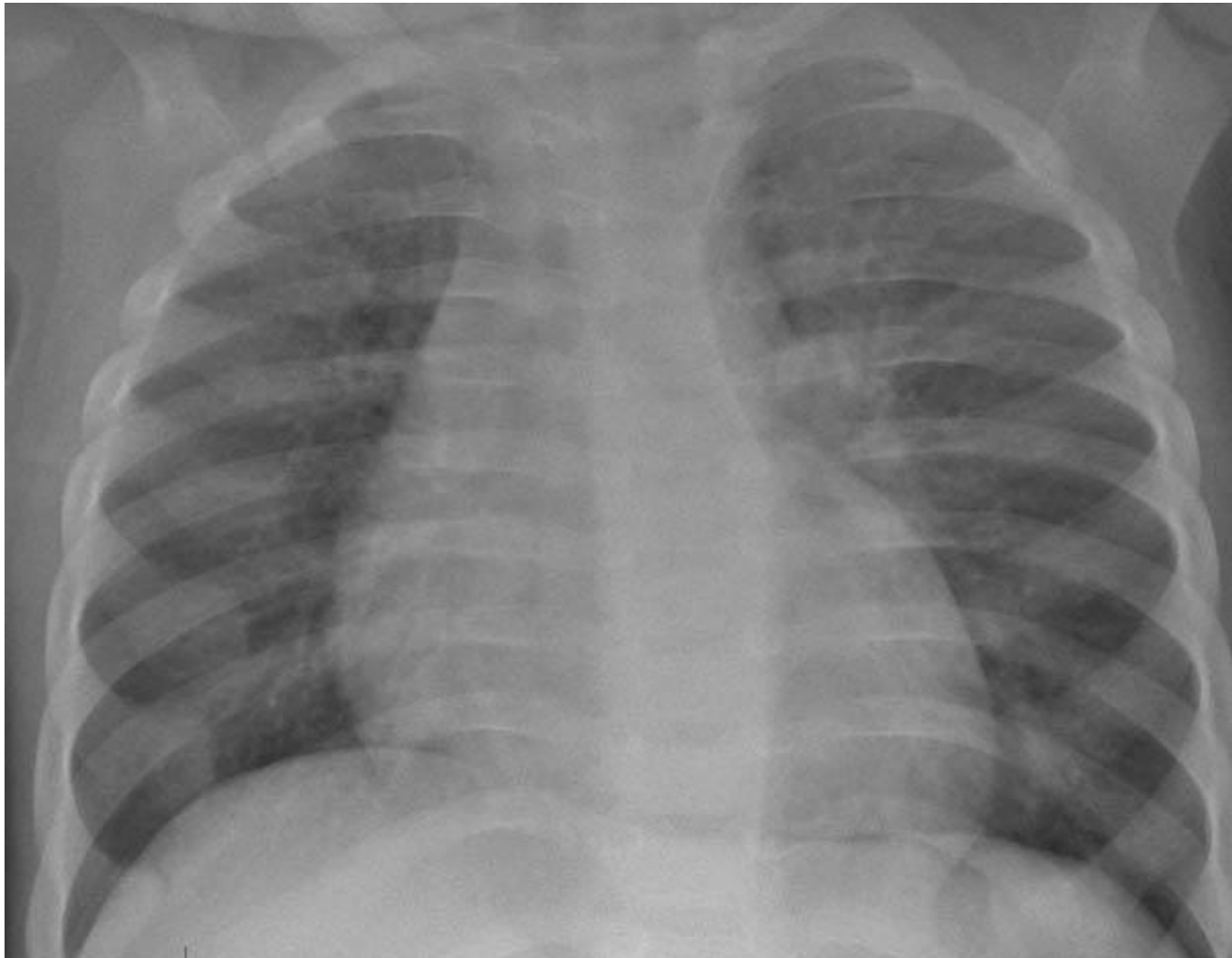
RDS



Normal CT brain

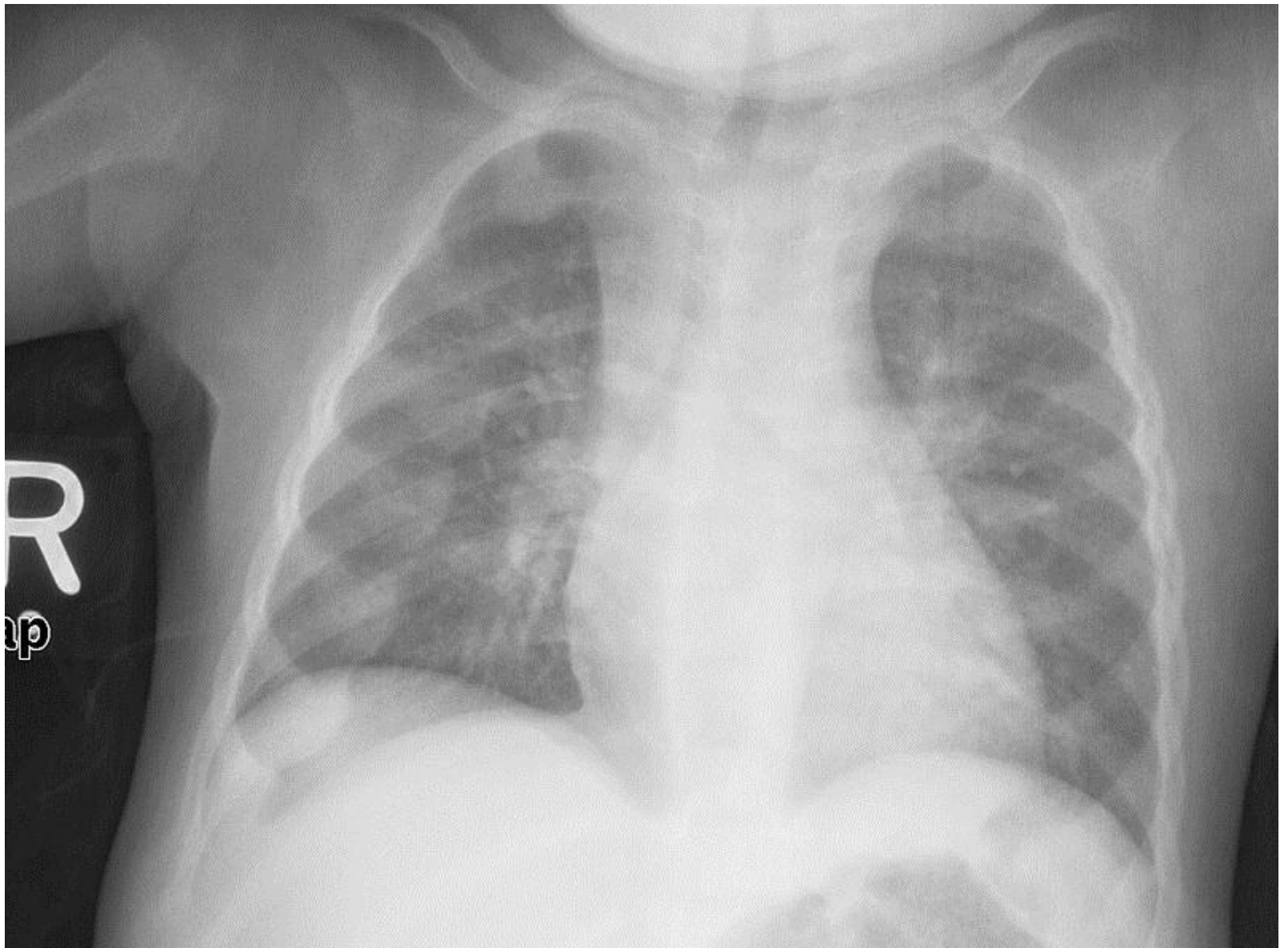


Hydrocephalus

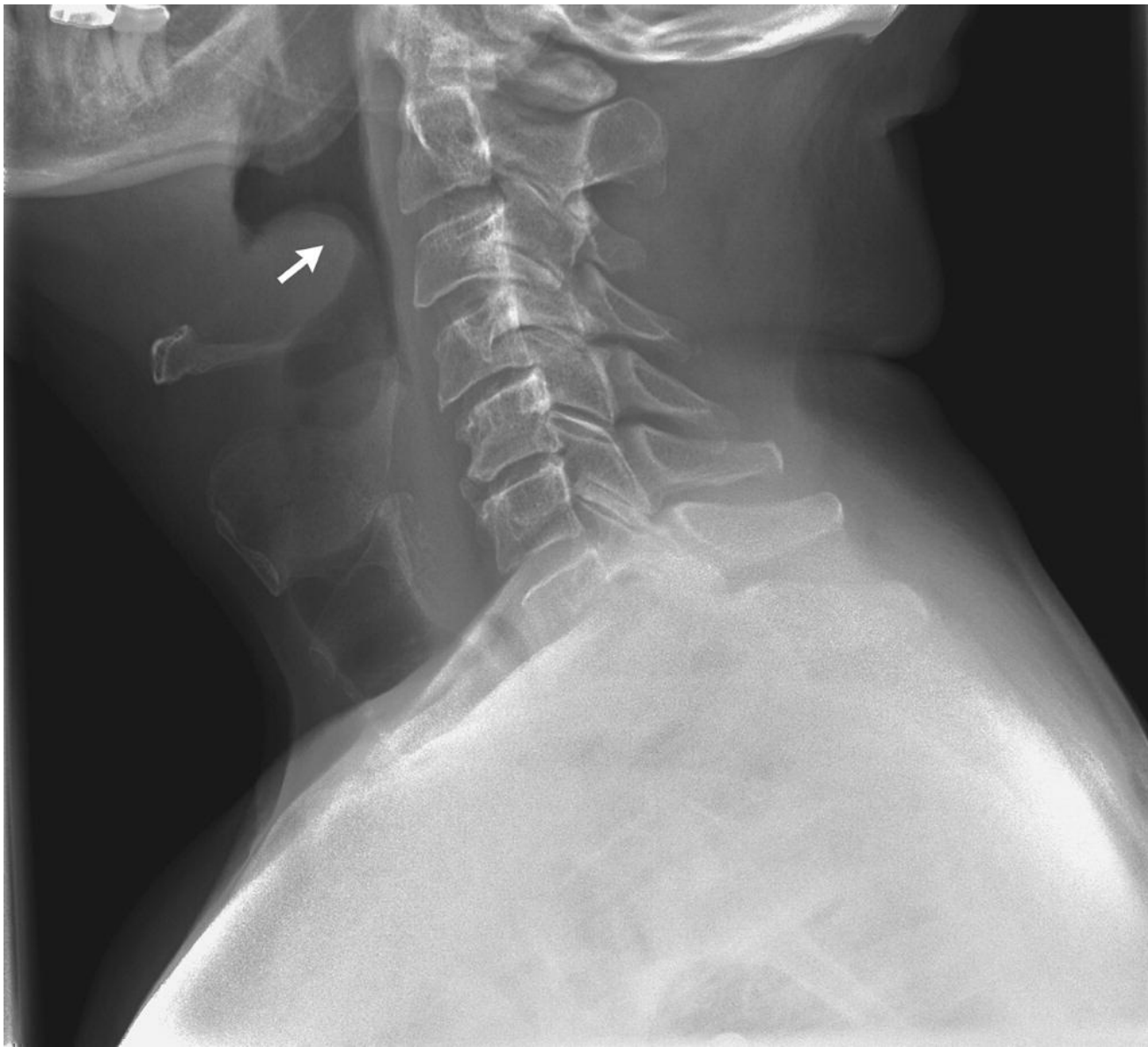


**Rachitic Rosaries**

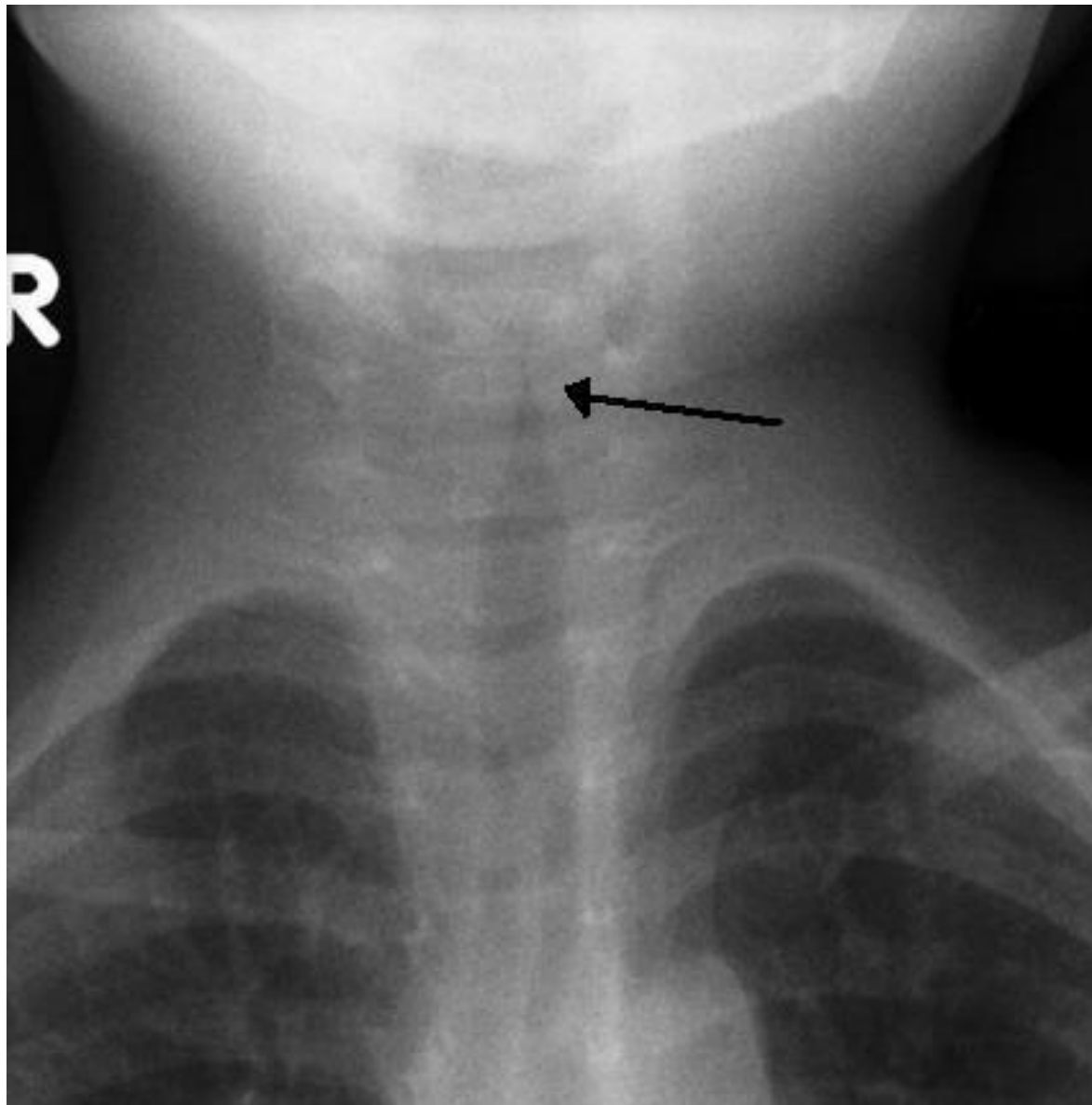




Rachitic Rosaries

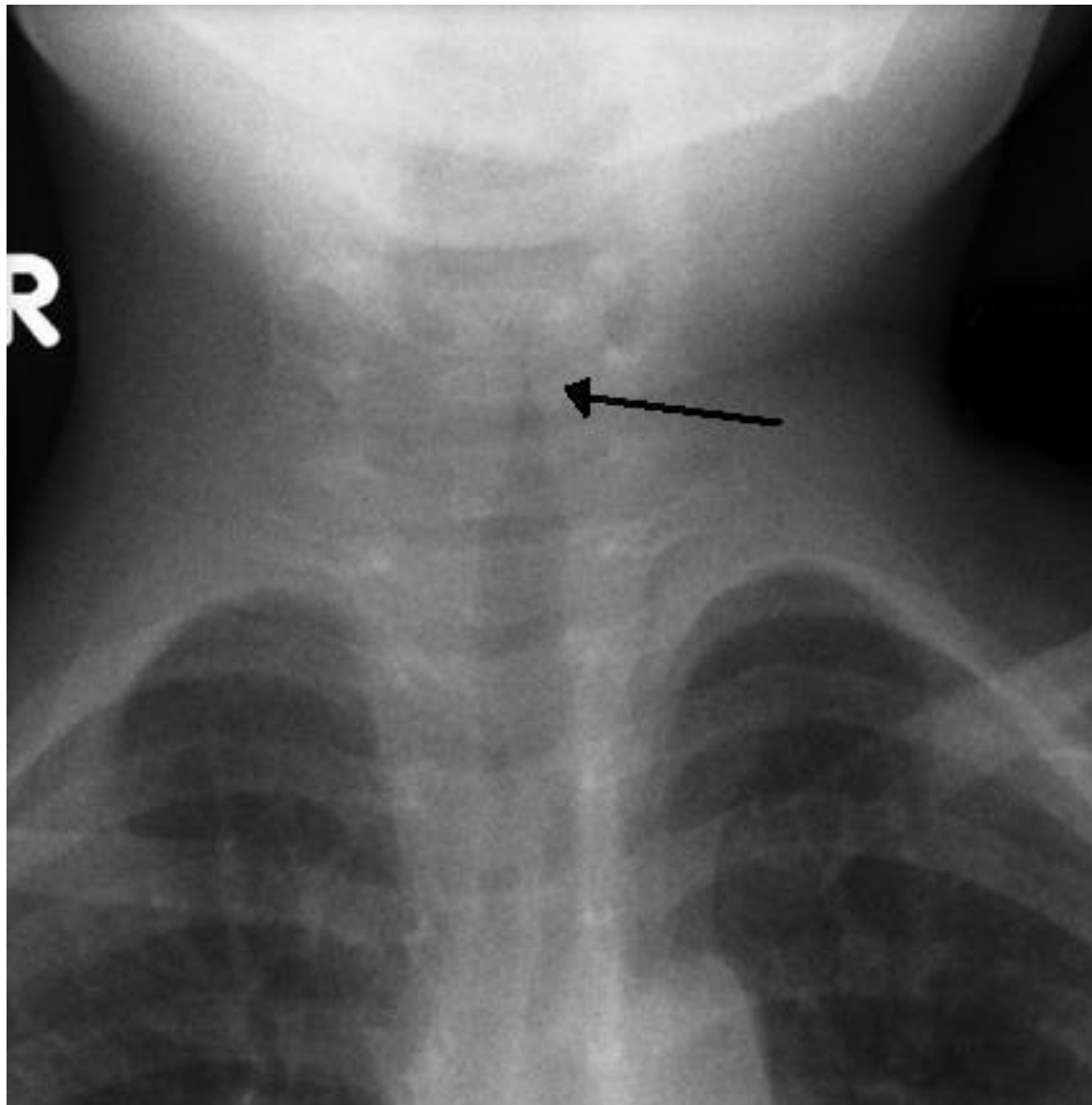


Epiglottitis (Thumb sign)

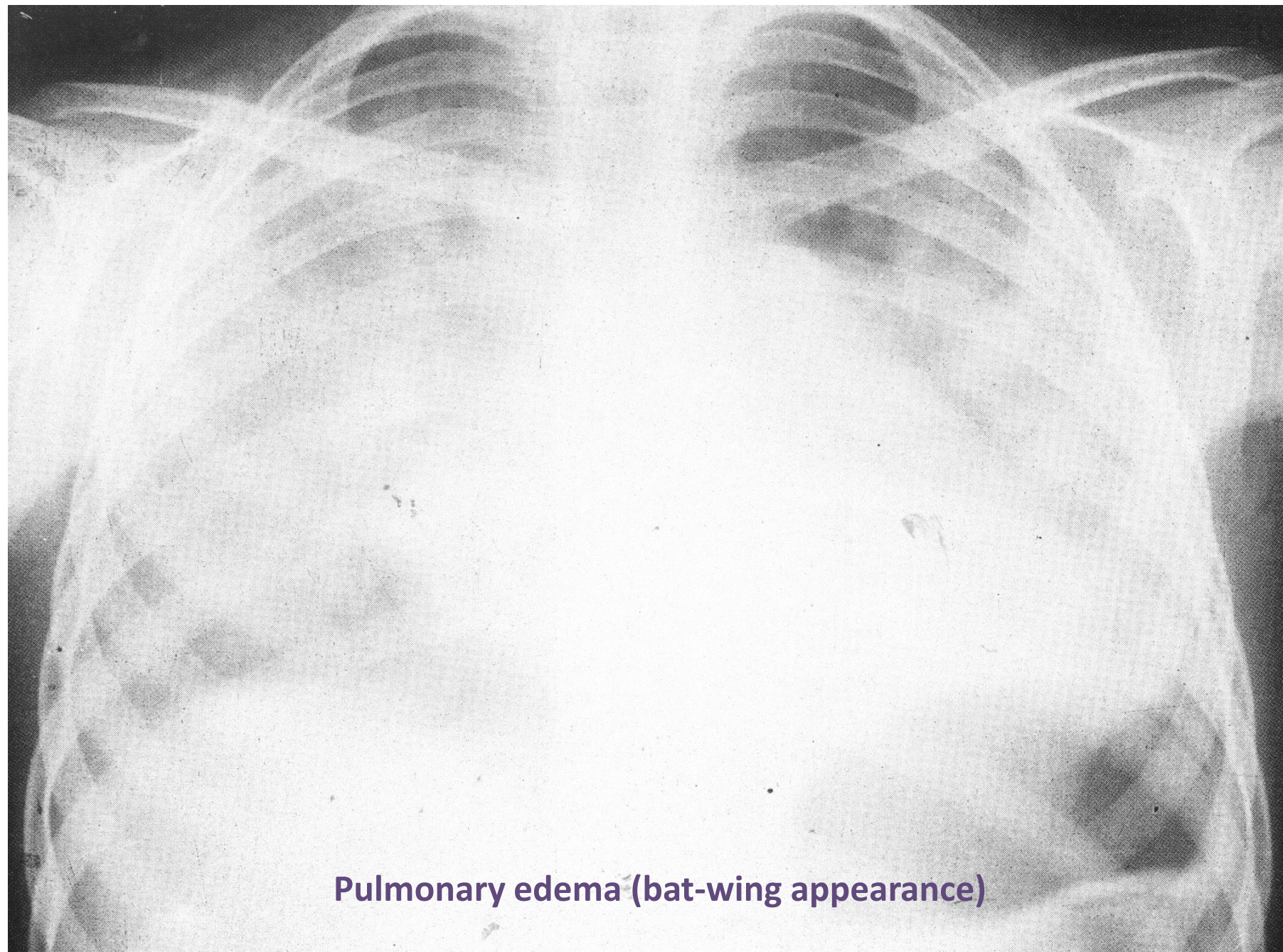


Acute Laryngeotracheobronchitis (Steeple sign)





Acute Laryngeotracheobronchitis (Steeple sign)



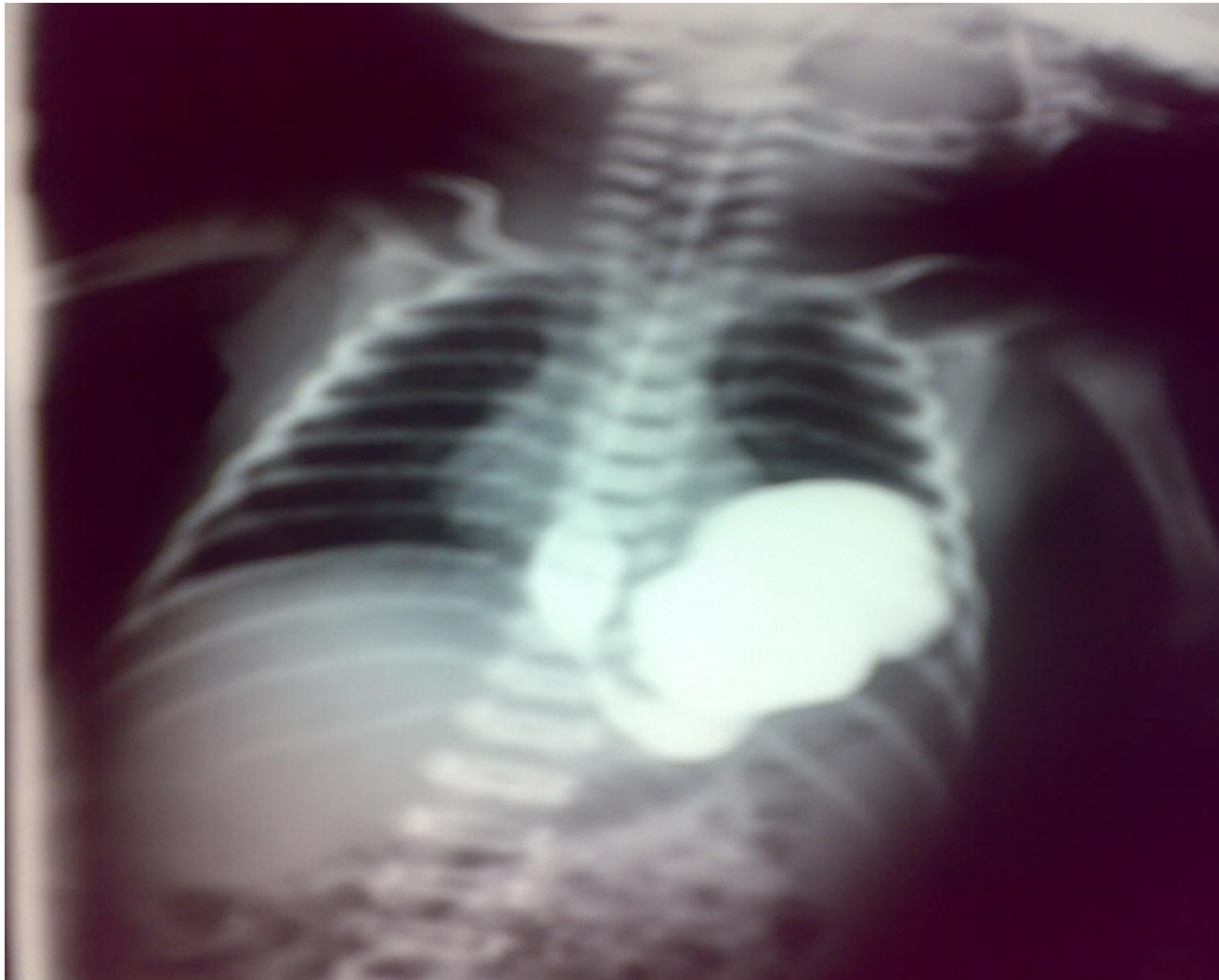
**Pulmonary edema (bat-wing appearance)**



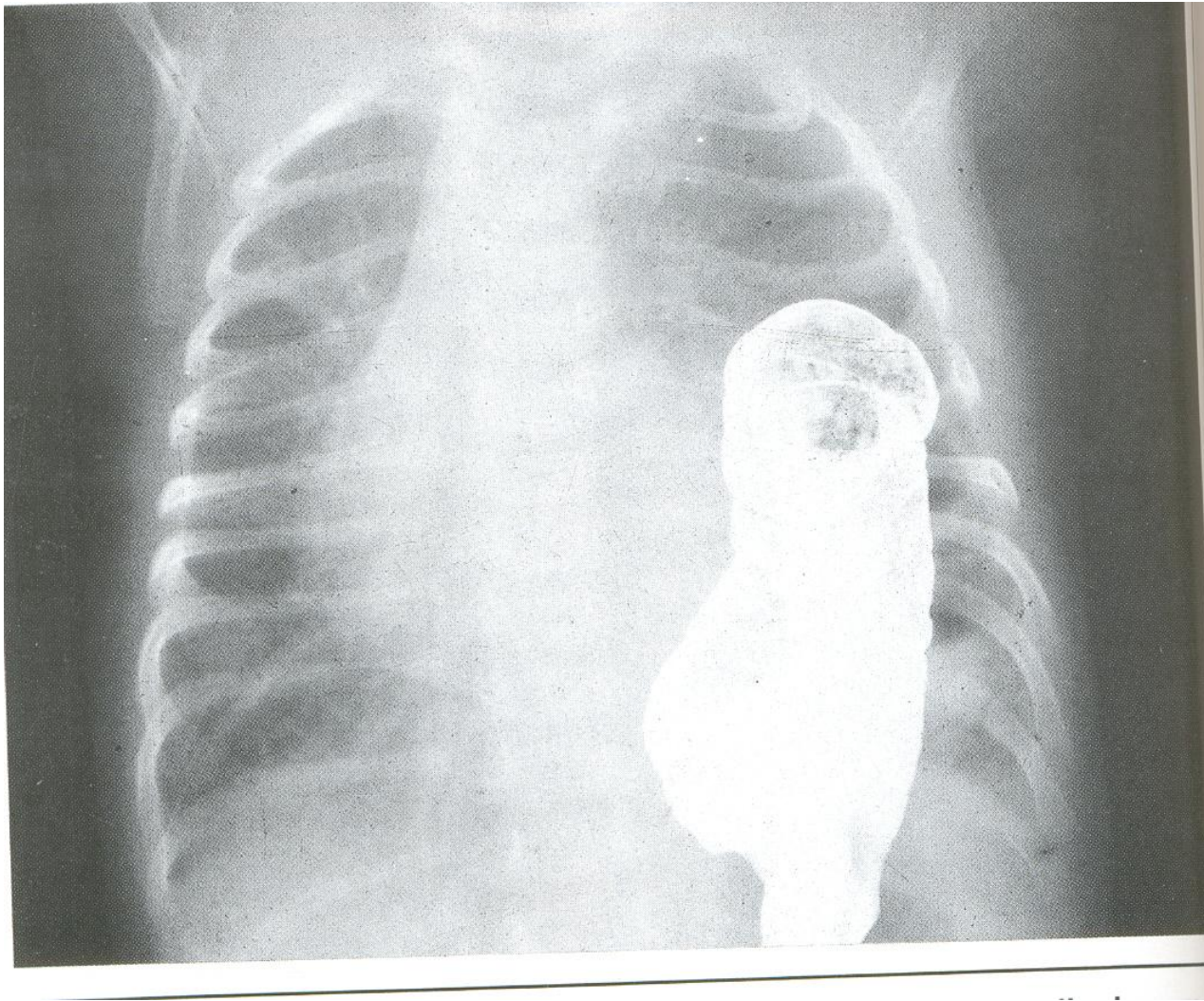


**Diaphragmatic Hernia**



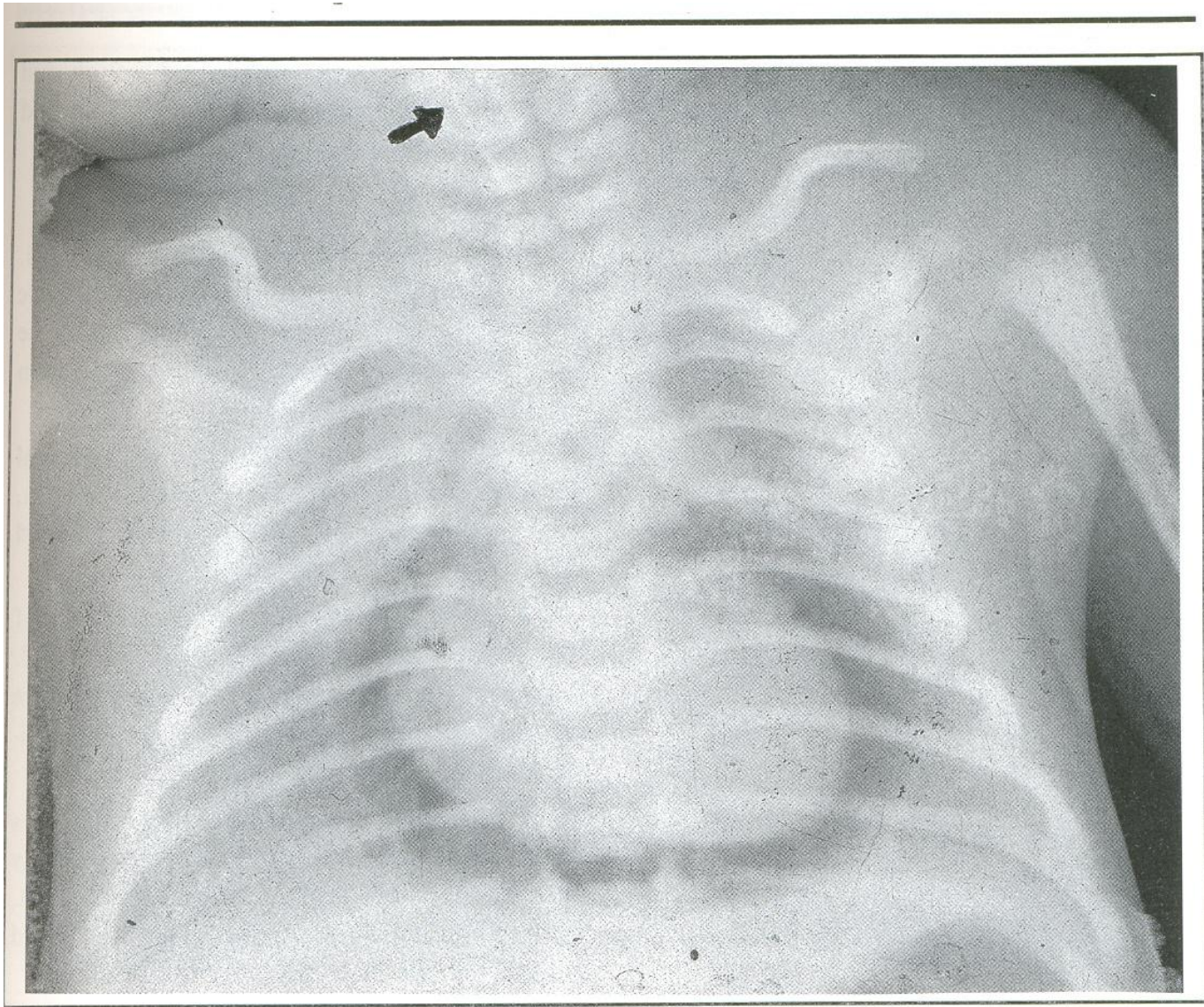


**Diaphragmatic Hernia**



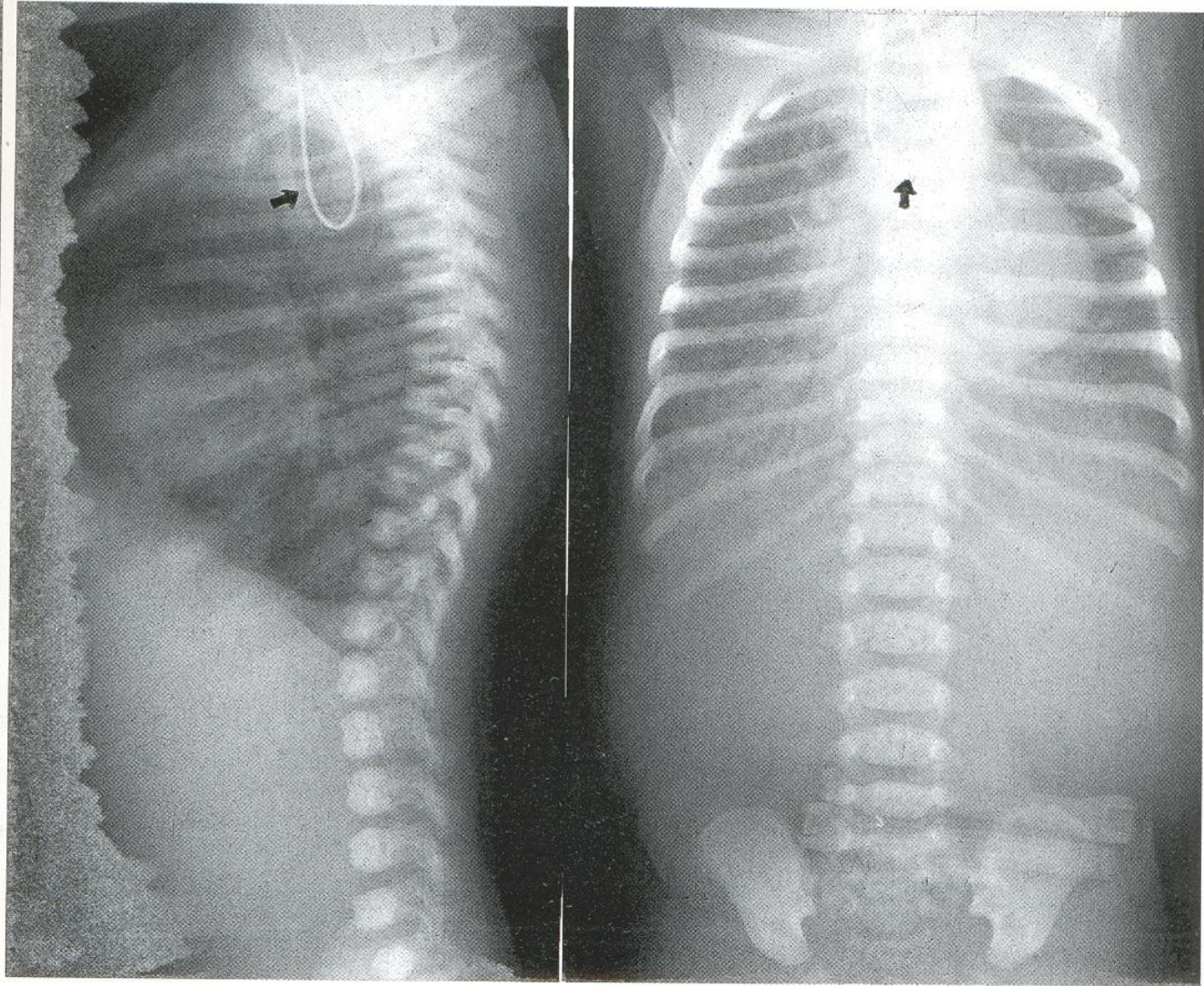
**Diaphragmatic Hernia**



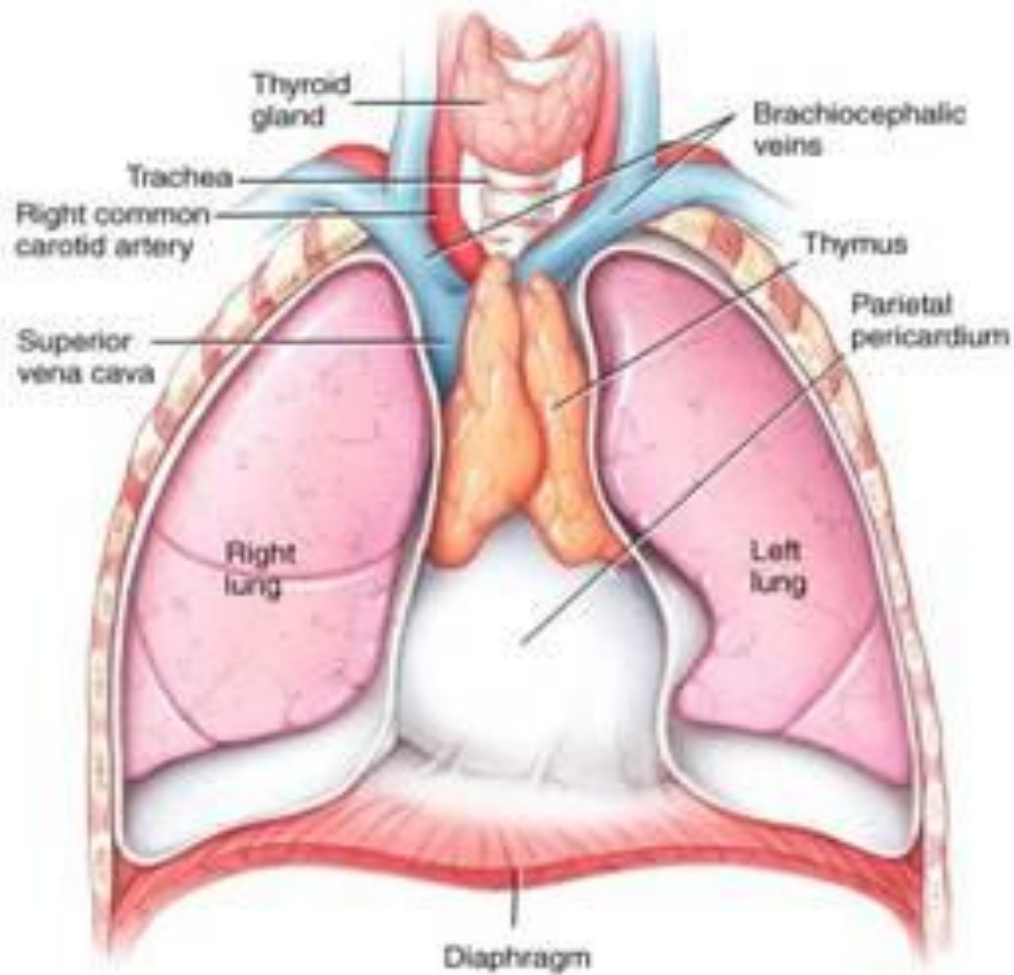


**(pneumopericardium)**



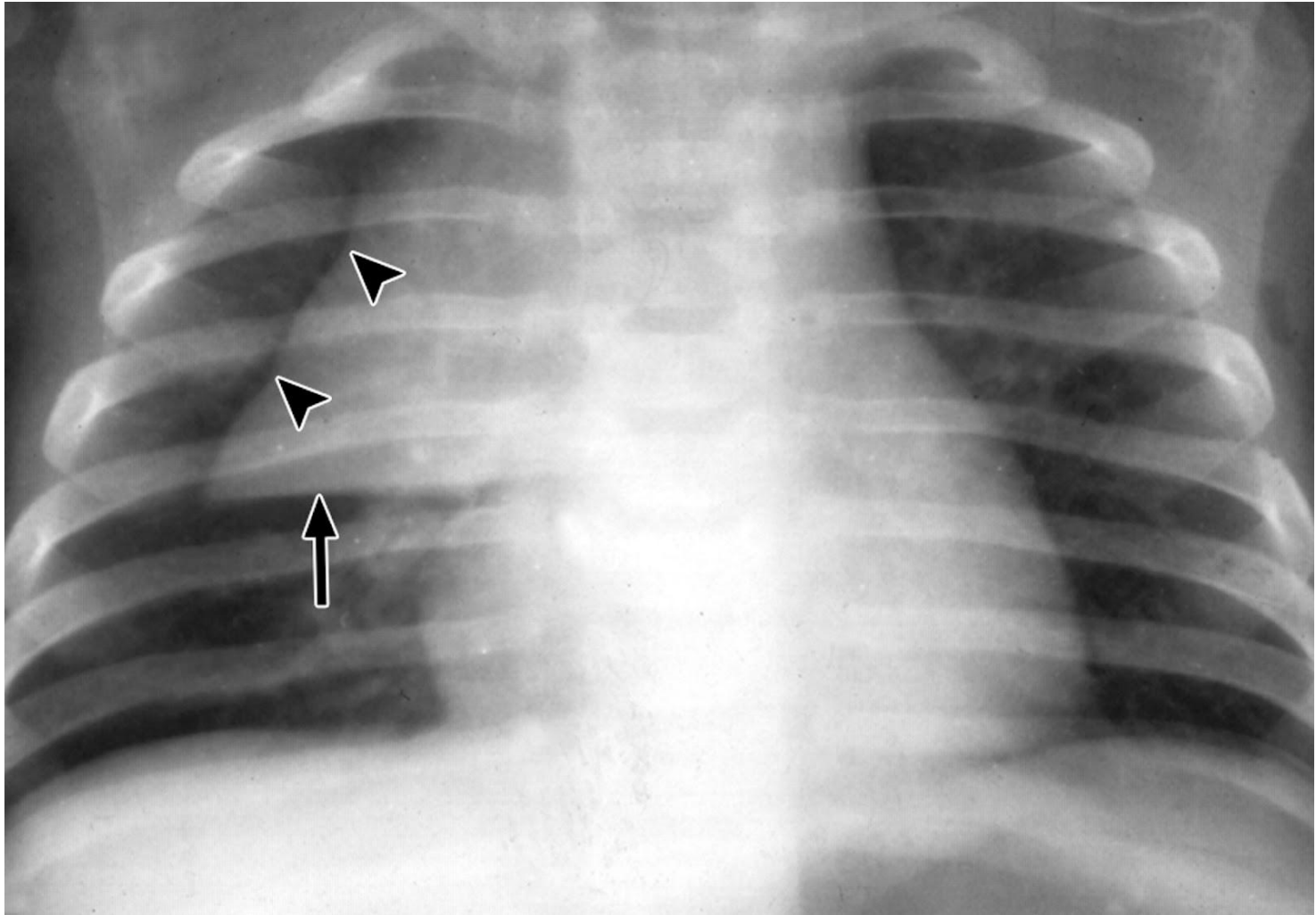


**(Tracheo-Esophageal Fistula)**



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**Thymus Gland**

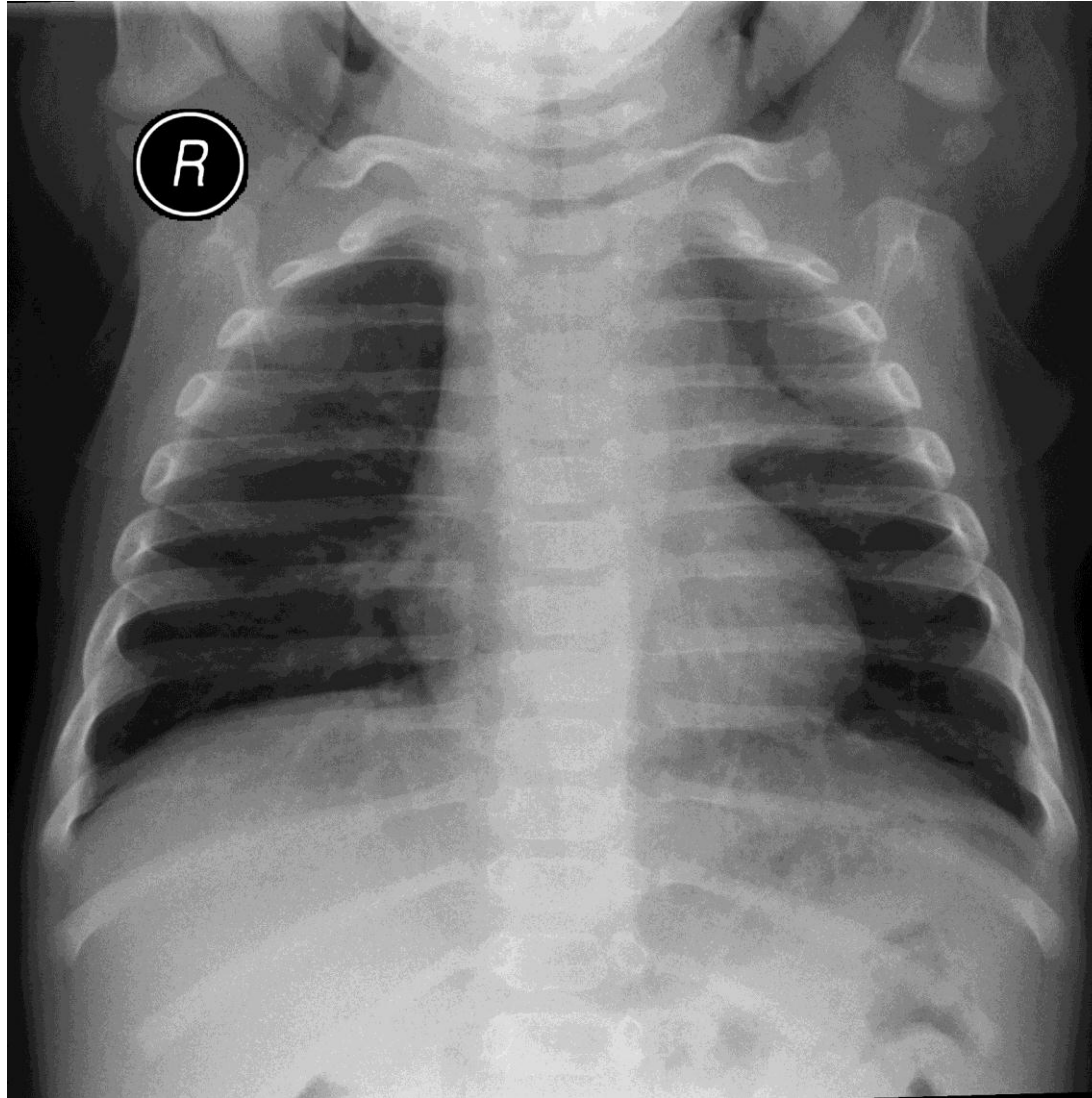


**Thymus Gland**

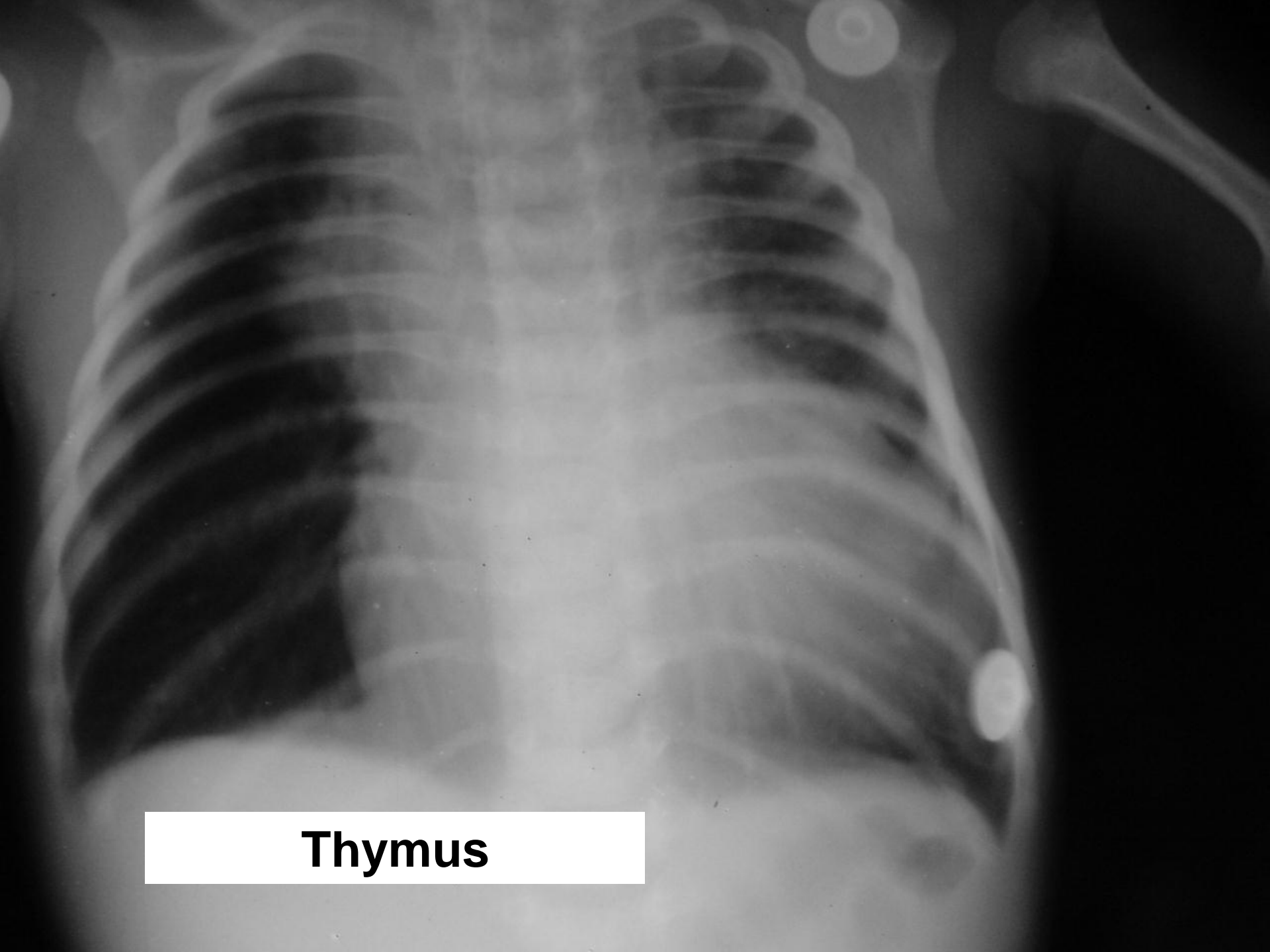




**Thymus Gland**

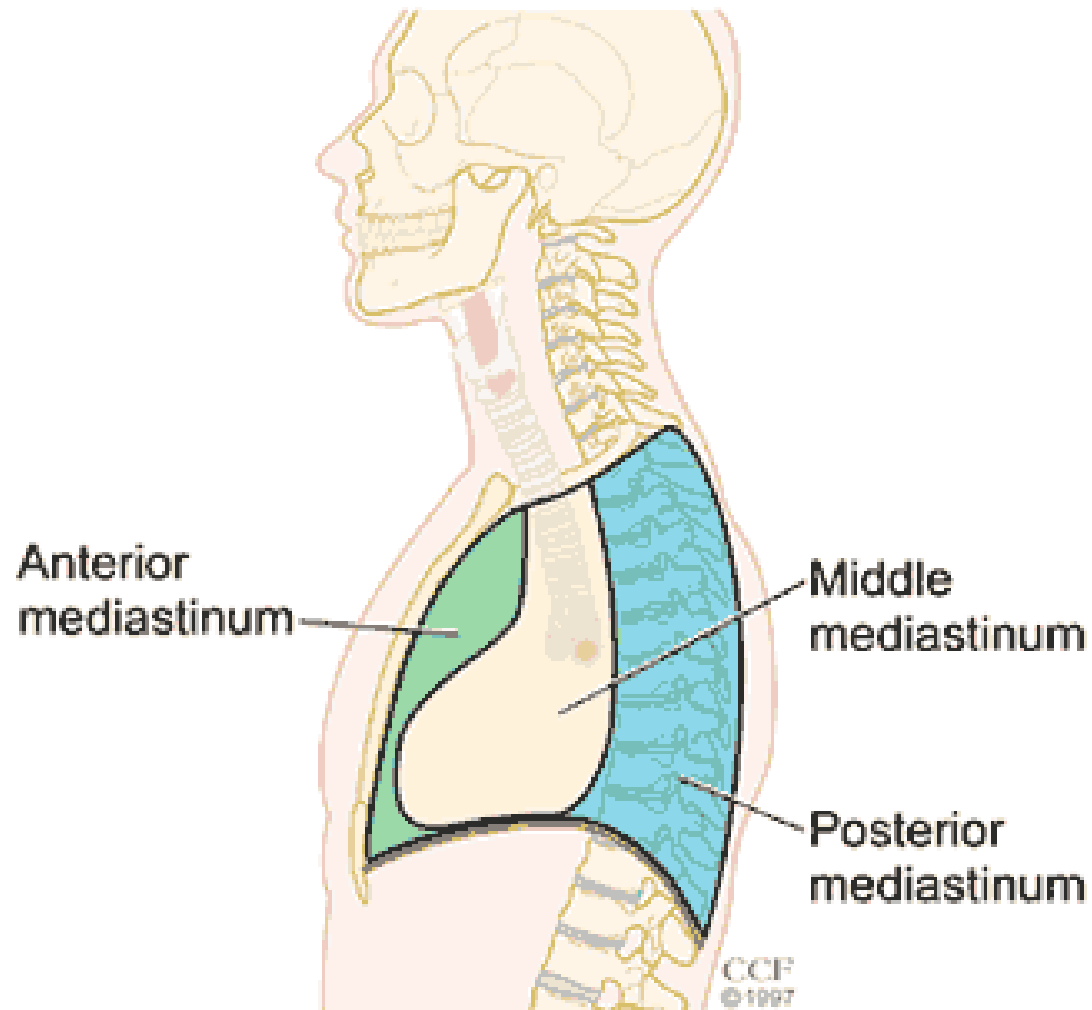


**Thymus Gland**

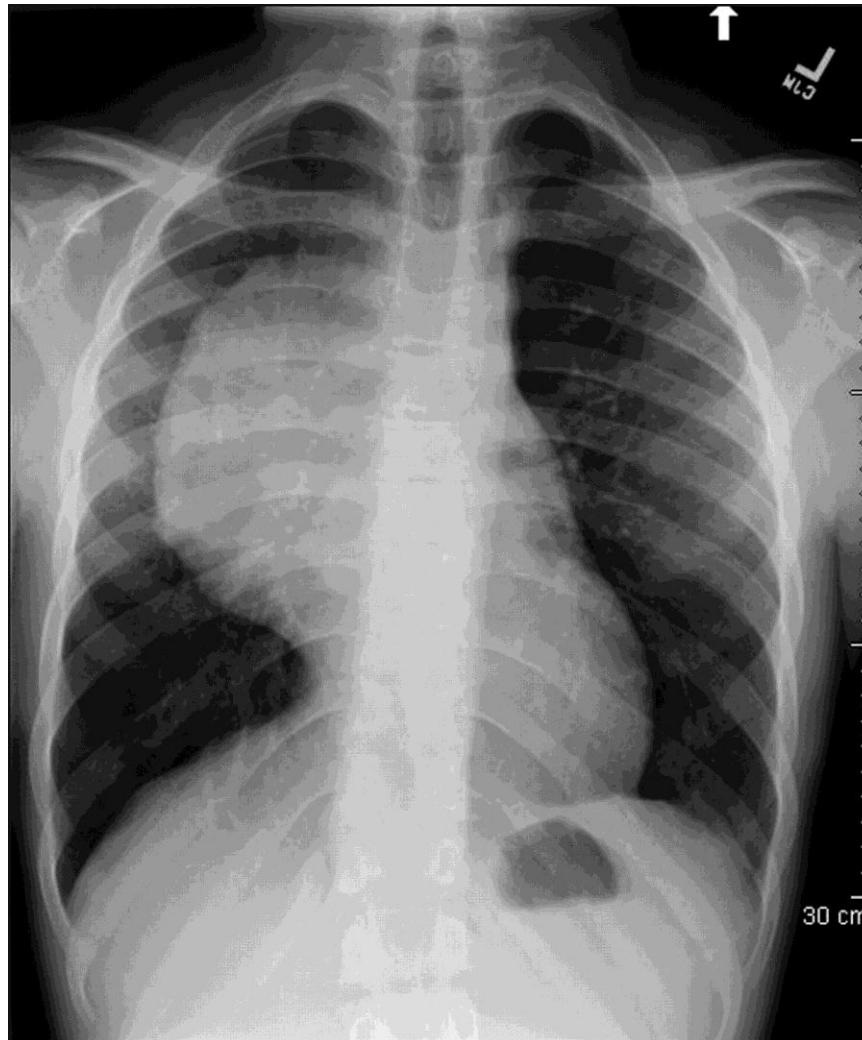


**Thymus**

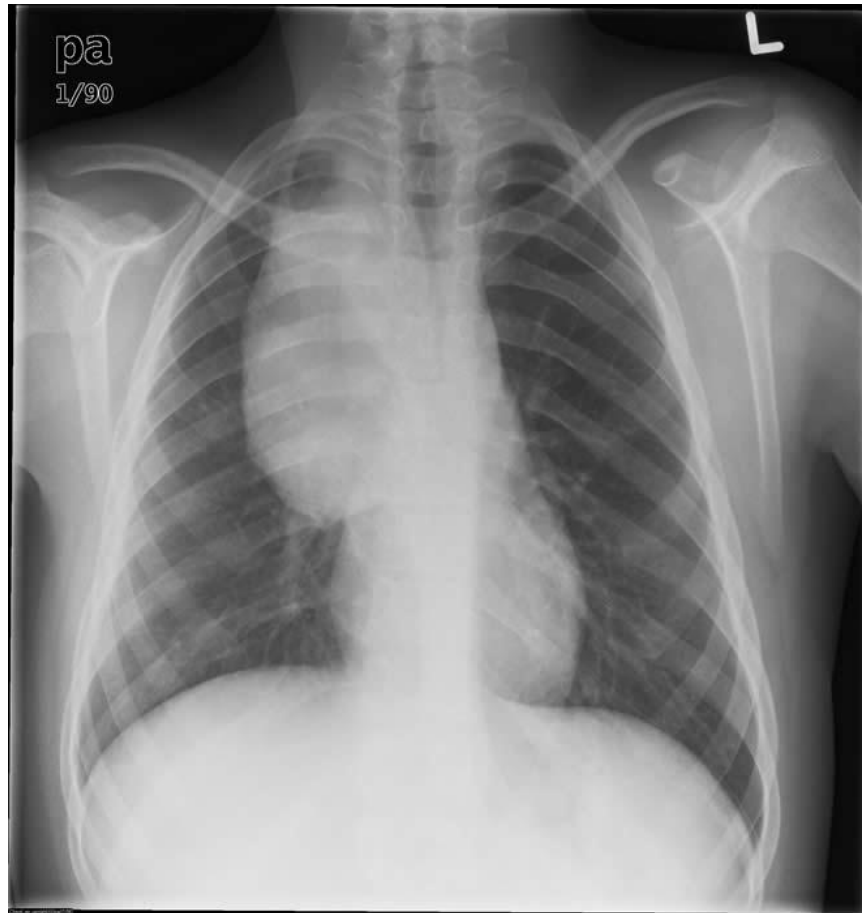




## Mediastinal Mass



**Mediastinal Mass**



**Mediastinal Mass**



